# DOCUMENT RESUME

ED 290 868 CE 049 519

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|---|---|
| TITLE | Central States Annual Research Conference in Agricultural Education Proceedings (42nd, Chicago, Illinois, February 21-22, 1988). |
| INSTITUTION | Southern Illinois Univ., Carbondale. |
| PUB DATE | Feb 88 |
| NOTE | 261p. |
| PUB TYPE | Collected Works - Conference Proceedings (021) -- Reports - Research/Technical (143) |
| EDRS PRICE | MF01/PC11 Plus Postage. |
| DESCRIPTORS | Adult Education; Adult Programs; *Agricultural Education; Classroom Techniques; Cognitive Style; Cooperative Education; *Educational Research; Extension Education; Leadership Training; Marketing; Postsecondary Education; Program Improvement; *Research Methodology; Research Needs; Rural Education; Secondary Education; Statewide Planning; Student Characteristics; Student Motivation; Student Organizations; Student Recruitment; Supervised Farm Practice; Teacher Characteristics; Teacher Effectiveness; Teaching Methods; *Vocational Education |
| IDENTIFIERS | 4 H Clubs; Future Farmers of America |

ABSTRACT

The following papers are included in this conference report: "Generative Themes for Research in Agricultural Education," (Copa); "Factors Associated with Participation of Iowa Young Farmers in Agricultural Extension Programs" (Martin, Omer); "Personality Characteristics of Groups of Wisconsin Vocational, Technical, and Adult Education" (Petrick, Thompson); "Professional Activities and Needs of Extension Educators as Perceived by Extension Educators in Academic Departments: A National Study" (Van Tilburg, Poling); "An Analysis of the Opinions of Secondary School Principals of Schools that Have Either Dropped, Added, or Maintained Secondary Agricultural Programs in Michigan from 1982 to 1986" (Bobbitt); "Assessment of the Effectiveness of Recruitment Strategies Designed To Attract High-Ability Nontraditional Students to the College of Agriculture" (Boone, Newcomb, Reisch, Warmbrod); "Perceptions of Selected Policy Makers toward Agriculture" (Schumacher, Kahler); "Priorities of Beginning Teachers of Agriculture in Missouri" (Johnson, Linhardt, Stewart); "Perception of Secondary Teachers Concerning Public Schools in Rural Communities" (McCracken, Miller); "Vocational Agriculture Teacher Personality and Effective Teaching: Is There a Relationship?" (McClain, Horner); "Effect of Attendance at a Joint Vocational School on Motivation toward School of Vocational Agriculture Students" (Hedges, Van Tilburg, Newman); "Integrating Biological Principles with Secondary Agriculture Instruction" (Roegge, Russell); "Educational Needs of Urban Agribusiness Employees" (Harbstreit, Stewart, Birkenholz); "Factors Influencing the Occurrence of Adult Agricultural Education Programs" (Christmas, Warmbrod); "Improvements Needed in Young Farmer and Young Farm Wives Organizations: Members Perceptions" (Miller); "Leadership Ability of Young Rural Adults in North Dakota" (Luft); "Relationship of Marketing Activities and Promotional Methods Used with County 4-H Club Membership in New Jersey and Ohio" (Diem, Miller); "Instructional Program, SOEP, and

FFA Quality and Factors Related to Quality" (Straquadine); "Assessing the Educational Training Needs of Volunteer 4-H Leaders in Indiana" (Peters, Lowry); and "Relationship between Performance on the Vocational Agriculture Achievement Test and Selected Characteristics of Farm Management Graduates in Ohio" (Sommers, Barrick). Each group of three papers is followed by a critique. (MN)

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Proceedings

# CENTRAL STATES

# 42ND ANNUAL RESEARCH CONFERENCE

# IN

# AGRICULTURAL EDUCATION

FEBRUARY 21 - 22, 1988

CHICAGO, ILLINOIS

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# ACKNOWLEDGEMENTS

Planning for the Central States 42nd Annual Research Conference in Agricultural Education was aided by the advice of Dr. Eddie Moore, Michigan State University. The information and advice from Dr. Moore was very valuable in preparation for the 1988 conference.

Forty-three paper proposals were submitted for review. The paper proposals were reviewed by a panel of teacher educators outside the Central Region. The reviewers were:

Dr. Phillip Zurbrick
Agricultural Education
University of Arizona

Dr. John Hillison
Agricultural Education
Virginia Tech

Dr. Dean Sutphin
Agricultural Education
Cornell University

A special thanks to Dr. Zurbrick, Dr. Hillison, and Dr. Sutphin whose review of the paper proposals provided the basis for the selection of the papers identified for presentation. Eighteen of the 43 paper proposals were selected for a 42% acceptance rate. The 19th and 20th paper proposals were identified as the alternate papers. It should be noted that several of the other paper proposals were rated acceptable by the reviewers.

A special thanks is also extended to the keynote speaker, Dr. George Copa, Professor, Vocational and Technical Education, University of Minnesota. Dr. Copa's presentation was titled "Generative Themes for Research in Agricultural Education."

Appreciation is extended to Dr. Roy Dillon, University of Nebraska, for his work in presenting the conference summary. Thanks is also extended to the presenters, reactors, and chairpersons. Their efforts were greatly appreciated.

Fred W. Reneau, Chairperson
Central States 42nd Annual Research

# SCHEDULE OF RESPONSIBILITY FOR FUTURE CENTRAL STATES AGRICULTURAL EDUCATION RESEARCH CONFERENCES

| | |
|---|---|
| 1989 | Ohio |
| 1990 | Kansas |
| 1991 | Iowa |
| 1992 | Wisconsin |
| 1993 | Missouri |
| 1994 | North Dakota |
| 1995 | Nebraska |
| 1996 | Minnesota |
| 1997 | Indiana |
| 1998 | South Dakota |
| 1999 | Michigan |
| 2000 | Illinois |

# PROGRAM

## 42nd ANNUAL CENTRAL STATES RESEARCH CONFERENCE IN AGRICULTURAL EDUCATION

Sheraton Plaza Chicago
Chicago, Illinois
February 21-22, 1988

Conference Chairperson: Fred W. Reneau
Southern Illinois University

Sunday, February 21, 1988

| | |
|---|---|
| 5:30 - 6:30 p.m. | Registration - Yorkshire Room (13th Floor) |
| | Dave Hahn, Southern Illinois University<br>Joe Matthews, Southern Illinois University |

### FIRST SESSION

Yorkshire Room (13th Floor)

| | |
|---|---|
| 6:30 - 6:45 p.m. | Conference Overview |
| | Fred W. Reneau, Southern Illinois University |
| | Chairperson: Earl Russell<br>University of Illinois |
| 6:45 - 7:30 p.m. | Keynote Address - |
| | "GENERATIVE THEMES FOR RESEARCH IN AGRICULTURAL EDUCATION" |
| | George Copa, Professor<br>University of Minnesota |
| 7:30 - 8:00 p.m. | Question and Answer Session |
| 8:00 - 8:05 p.m. | Announcements |
| 8:05 p.m. | Adjourn |

Monday, February 22, 1988

7:30 - 8:00 a.m. Late Registration - Berkshire Room (2nd Floor)

Dave Hahn, Southern Illinois University
Joe Matthews, Southern Illinois University

## SECOND SESSION

## CONCURRENT SESSION A

Salon A (2nd Floor) 8:00 - 9:40 a.m.

## CHARACTERISTICS OF POST SECONDARY EDUCATION: INSTRUCTORS AND CLIENTS

| | |
|---|---|
| Chairperson: | Julia Gamon, Iowa State University |
| Reactor: | Ed Osborne, University of Illinois |
| Topic I: | Factors Associated with Participation of Iowa Young Farmers in Agricultural Extension Programs<br>Robert A. Martin and Mahmoud Hassan Omer, Iowa State University |
| Topic II: | Personality Characteristics of Groups of Wisconsin Vocational, Technical and Adult Education<br>Glenn H. Petrick and John F. Thompson, University of Wisconsin-Madison |
| Topic III: | Professional Activities and Needs of Extension Educators as perceived by Extension Educators in Academic Departments: A National Study<br>Emmalou Van Tilburg and Richard L. Poling, Ohio State University |

## CONCURRENT SESSION B

Salon B (2nd Floor) 8:00 - 9:40 a.m.

## ACTIONS TO SUPPORT VOCATIONAL AGRICULTURE PROGRAMS

Chairperson: Jeff Wood, Illinois State University

Reactor: Wade Miller, Iowa State University

Topic I: An Analysis of the Opinions of Secondary School Principals of Schools that have either dropped, added or Maintained Secondary Agriculture Programs in Michigan from 1982 to 1986

Frank Bobbitt, Michigan State University

Topic II: Assessment of the Effectiveness of Recruitment Strategies Designed to Attract High-Ability Non-Traditional Students to the College of Agriculture

Harry N. Boone, Jr., L. H. Newcomb, Kenneth W. Reisch, and J. Robert Warmbrod, Ohio State University

Topic III: Perceptions of Selected Policy Makers Toward Agriculture

Leon G. Schumacher, University of Missouri-Columbia
Alan A. Kahler, Iowa State University

## CONCURRENT SESSION C

Salon C (2nd Floor) 8:00 - 9:40 a.m.

### TEACHERS: PRIORITIES, PERCEPTIONS, & PERSONALITIES

| | |
|---|---|
| Chairperson: | Robert Wolf, University of Illinois |
| Reactor: | Blannie Bowen, Ohio State University |
| Topic I: | Priorities of Beginning Teachers of Agriculture in Missouri<br>Don Johnson, Richard Linhardt, and Bob Stewart, University of Missouri-Columbia |
| Topic II: | Perception of Secondary Teachers Concerning Public Schools in Rural Communities<br>J. David McCracken and Charles Miller, Ohio State University |
| Topic III: | Vocational Agriculture Teacher Personality and Effective Teaching: Is There a Relationship?<br>Clifford R. McClain and James T. Horner, University of Nebraska - Lincoln |

9:40 - 9:55 a.m. BREAK

# THIRD SESSION

## CONCURRENT SESSION D

Salon A (2nd Floor) 9:55 - 11:30 a.m.

## STUDENT MOTIVATION, INSTRUCTION, AND TEACHING/LEARNING STYLES

| | |
|---|---|
| Chairperson: | Tom Stitt, Southern Illinois University |
| Reactor: | George Wardlow, University of Minnesota |
| Topic I: | The Effect of Attendance at a Joint Vocational School on Motivation Toward School of Vocational Agriculture Students<br>Lowell E. Hedges, Emmalou Van Tilburg and Michael E. Newman, Ohio State University |
| Topic II: | Integrating Biological Principles with Secondary Agriculture Instruction<br>Chris Roegge and Earl B. Russell, University of Illinois |
| Topic III: | Educational Needs of Urban Agribusiness Employees<br>Steven R. Harbstreit, Bob R. Stewart and Robert J. Birkenholz, University of Missouri |

## CONCURRENT SESSION E

Salon B (2nd Floor) 9:55 - 11:30 a.m.

## ADULT EDUCATION: LEADERSHIP, PROGRAMS, AND NEEDS

| | |
|---|---|
| Chairperson: | Thomas Grady, University of Wisconsin-Madison |
| Reactor: | Jim Legacy, Southern Illinois University |
| Topic I: | Factors Influencing the Occurrence of Adult Agricultural Education Programs<br>Oren L. Christmas and J. Robert Warmbrod, Ohio State University |
| Topic II: | Improvements Needed in Young Farmer and Young Farmers Wives Organizations: Members' Perceptions<br>Larry E. Miller, Ohio State University |
| Topic III: | Leadership Ability of Young Rural Adults in North Dakota<br>Vernon D. Luft, North Dakota State University |

## CONCURRENT SESSION F

Salon C (2nd Floor) 9:55 - 11:30 a.m.

## PROMOTION AND THE IMPROVEMENT OF 4-H AND FFA

| | |
|---|---|
| Chairperson: | Len Harzman, Western Illinois University |
| Reactor: | Eddie Moore, Michigan State University |
| Topic I: | The Relationship of Marketing Activities and Promotional Methods Used with County 4-H Club Membership in New Jersey and Ohio<br>Keith G. Diem, Rutgers Univesity and<br>Larry E. Miller, Ohio State University |
| Topic II: | Instructional Program, SOEP and FFA Quality and Factors Related to Quality<br>Gary S. Straquadine, Allen Corporation of America<br>Presented by R. Kirby Barrick, Ohio State University |
| Topic III: | Assessing the Educational Training Needs of Volunteer 4-H Leaders in Indiana<br>Jerry L. Peters, Purdue University<br>Karen Lowry, East Noble High School |

### Alternate Paper

The Relationship Between Performance on the Vocational Agriculture Achievement Test and Selected Characteristics of Farm Management Graduates in Ohio

Robert D. Sommers, II
Ohio Department of Education
R. Kirby Barrick
Ohio State University

## FOURTH SESSION

## CENTRAL STATES AG ED RESEARCH CONFERENCE SUMMARY LUNCHEON

11:30 a.m. - 12:45 p.m. Yorkshire (13th Floor)

Chairperson: Fred Reneau, Southern Illinois University

Conference Summary: Dr. Roy Dillon, University of Nebraska

12:45 p.m. Adjourn

# Generative Themes for Research in Agricultural Education

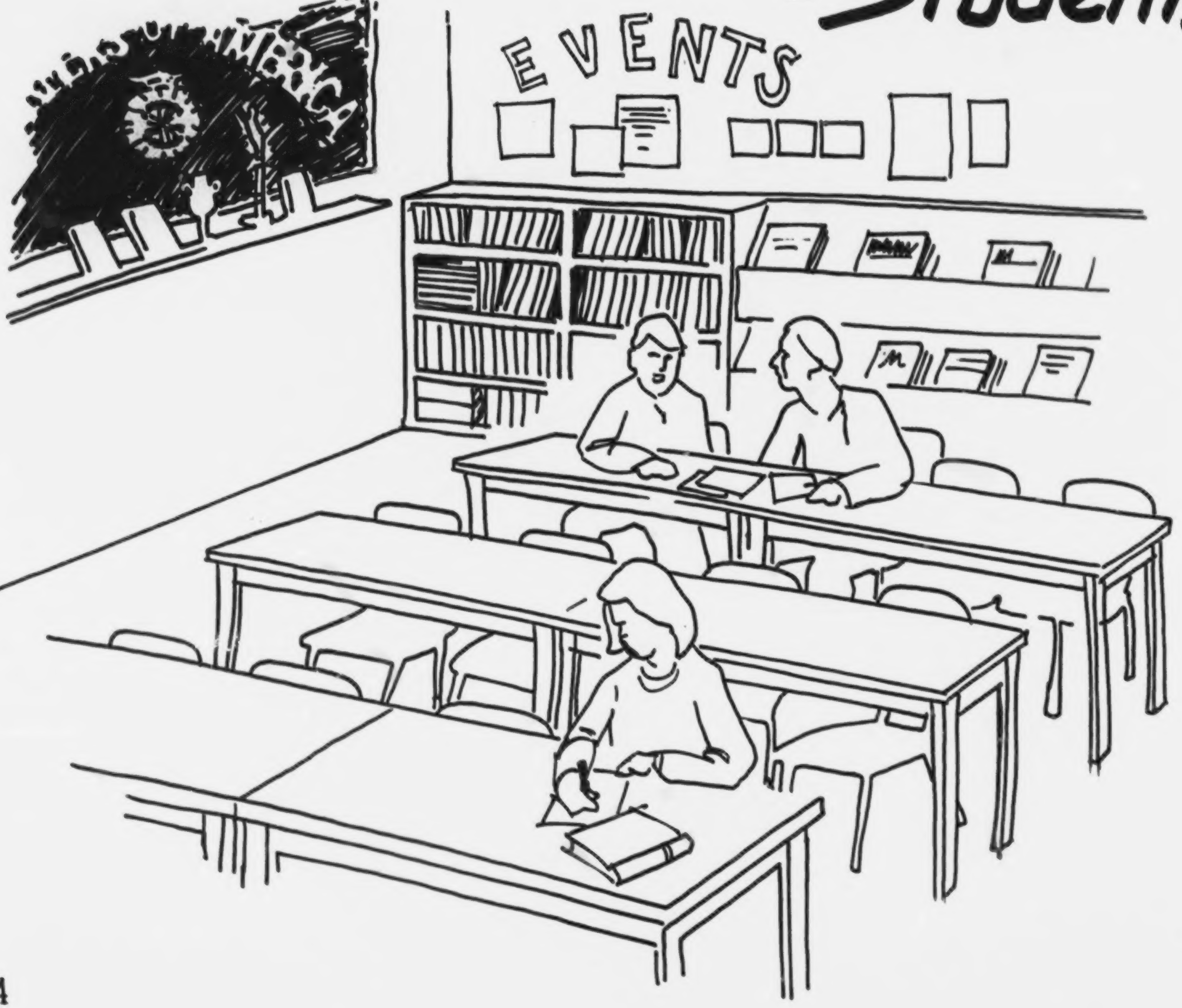
By

George H. Copa
Professor and Chairperson, Department of
Vocational and Technical Education.
University of Minnesota, St. Paul
Minnesota

Keynote Address to the 42nd Central States Research Conference in Agricultural Education, February 21, 1988 in Chicago, Illinois.

(Note: Drawings were done by Jim Kiehne, Minneapolis, Minnesota)

# -Students



# Farmers

- Food & Fibre

# -Identity

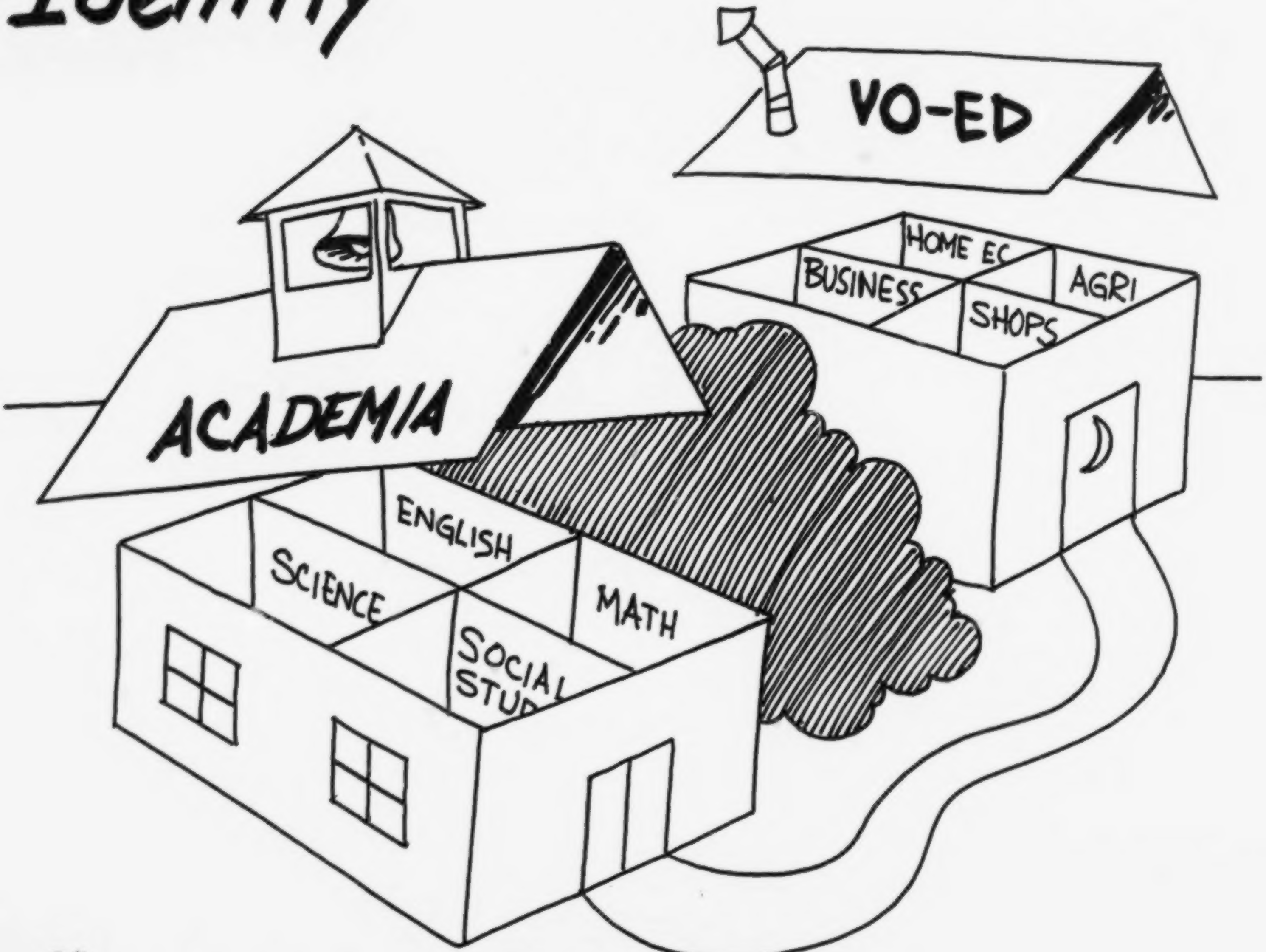

VO-ED
HOME EC
BUSINESS
AGRI
SHOPS
ACADEMIA
ENGLISH
SCIENCE
MATH
SOCIAL STUD

TABLE 3. RANKED ORDER OF IMPORTANCE AND DISTRIBUTION OF RESPONSES FOR COMPETENCIES CONCERNING MILKING.

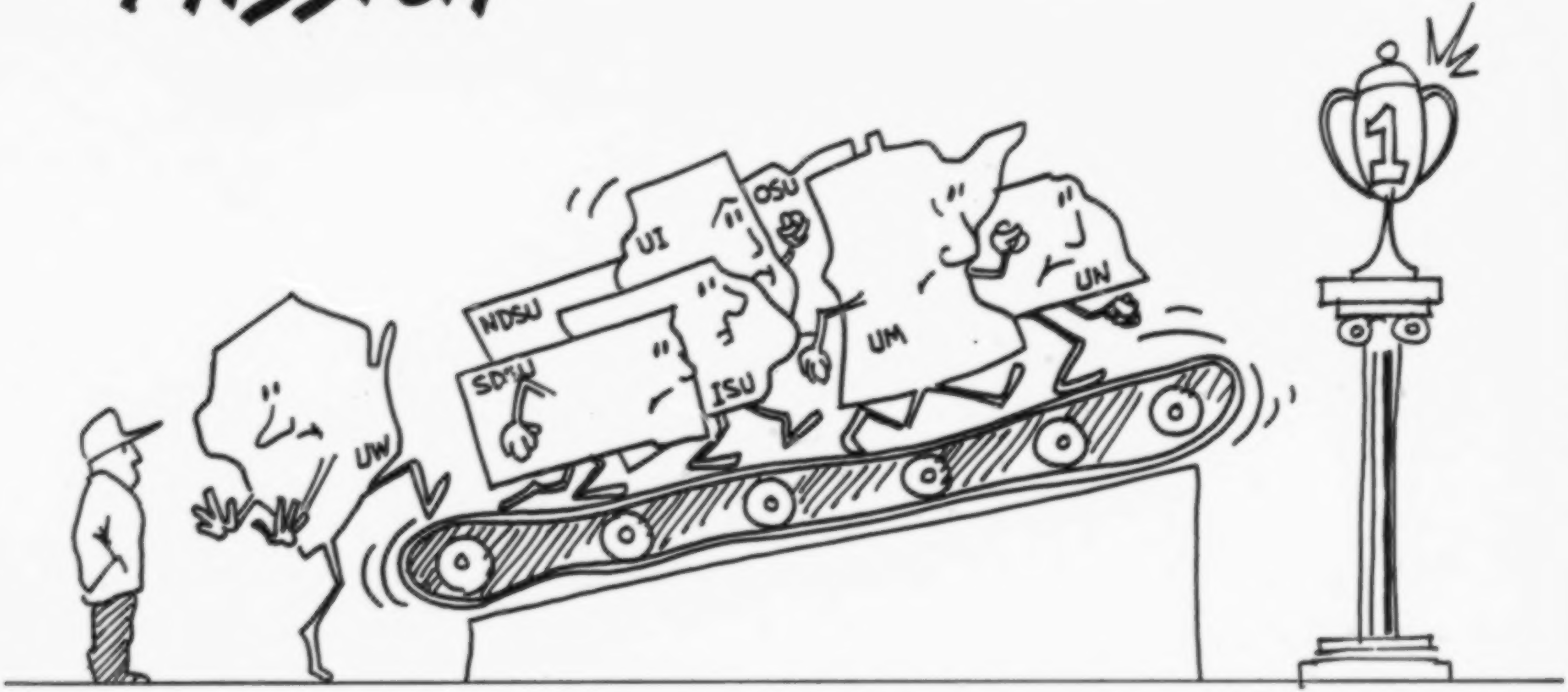
| Competency | Essential | Important | Of Some Importance | Not Important | Does Not Apply | Average |
|---|---|---|---|---|---|---|
| A. Follow correct milking procedure | 16 | 2 | 0 | 0 | 0 | 3.89 |
| 1. Practice gentle handling of the cow. | 35 | 8 | 1 | 0 | 0 | 3.77 |
| 2. Stimulate cow correctly for proper milk let-down. | 33 | 11 | [illegible] | 0 | 0 | 3.75 |
| 3. Follow an efficient and regular milking routine. | 30 | 14 | [illegible] | [illegible] | [illegible] | [illegible] |
| 4. Recognize problems of over and under milking. | 30 | 13 | [illegible] | [illegible] | [illegible] | [illegible] |
| 5. Break heifers in properly. | 25 | 18 | [illegible] | [illegible] | [illegible] | [illegible] |
| 6. Milk rapidly. | 23 | 15 | [illegible] | [illegible] | [illegible] | [illegible] |
| 7. Avoid the unusual at milking time. | 21 | 19 | [illegible] | [illegible] | [illegible] | [illegible] |
| B. Maintain milking system in good condition. | 11 | 3 | [illegible] | [illegible] | [illegible] | [illegible] |
| 1. Use milking equipment properly. | 28 | 16 | 0 | [illegible] | [illegible] | [illegible] |
| 2. Check vacuum system and keep operating at correct level. | 28 | 16 | 0 | 0 | 0 | [illegible] |
| 3. Keep teat inflations in proper condition. | 28 | 16 | 0 | 0 | 0 | 3.64 |
| 4. Use proper cleaning and sanitizing techniques. | 25 | 18 | 1 | 0 | 0 | 3.55 |
| 5. Follow recommended maintenance program. | 21 | 21 | 2 | 0 | 0 | 3.43 |
| 6. Know how a milking machine works. | 21 | 21 | 2 | 0 | 0 | 3.42 |
| 7. Analyze different chemicals for their effectiveness in cleaning and sanitizing. | 6 | 26 | 8 | 3 | 0 | 2.81 |
| C. Keep mastitis losses to a minimum. | 12 | 1 | 0 | 0 | 0 | 3.92 |
| 1. Correct situations which cause mastitis to occur. | 37 | 7 | 0 | 0 | 0 | 3.84 |
| 2. Identify mastitis problems and treat mastitic cows. | 30 | 14 | 0 | 0 | 0 | 3.68 |
| 3. Use a teat-dipping program to lessen new incidence of mastitis. | 24 | 17 | 2 | 1 | 0 | 3.45 |
| 4. Use C.M.T. or W.M.T. to identify mastitis problems. | 8 | 26 | 9 | 0 | 0 | 2.98 |
| 5. Milk cows in order--mastitic cows last. | 9 | 26 | 6 | 3 | 0 | 2.93 |
| 6. Estimate losses due to mastitis | 11 | 17 | 14 | 2 | 0 | 2.84 |
| 7. Use strip cup to spot abnormal milk. | 10 | 19 | 12 | 2 | 1 | 2.80 |
| 8. Use suitable dry cow treatment. | * | * | * | * | * | * |
| | | Area Weighted Average | | | | 3.42 |

*Added competency, not evaluated by dairymen.

LEADERSHIP
CHARACTER
AGRICULTURE
THRIFT
RECREATION

COOPERATION
SCHOLARSHIP
CITIZENSHIP
SERVICE
PATRIOTISM

# -Mission



# -Impact

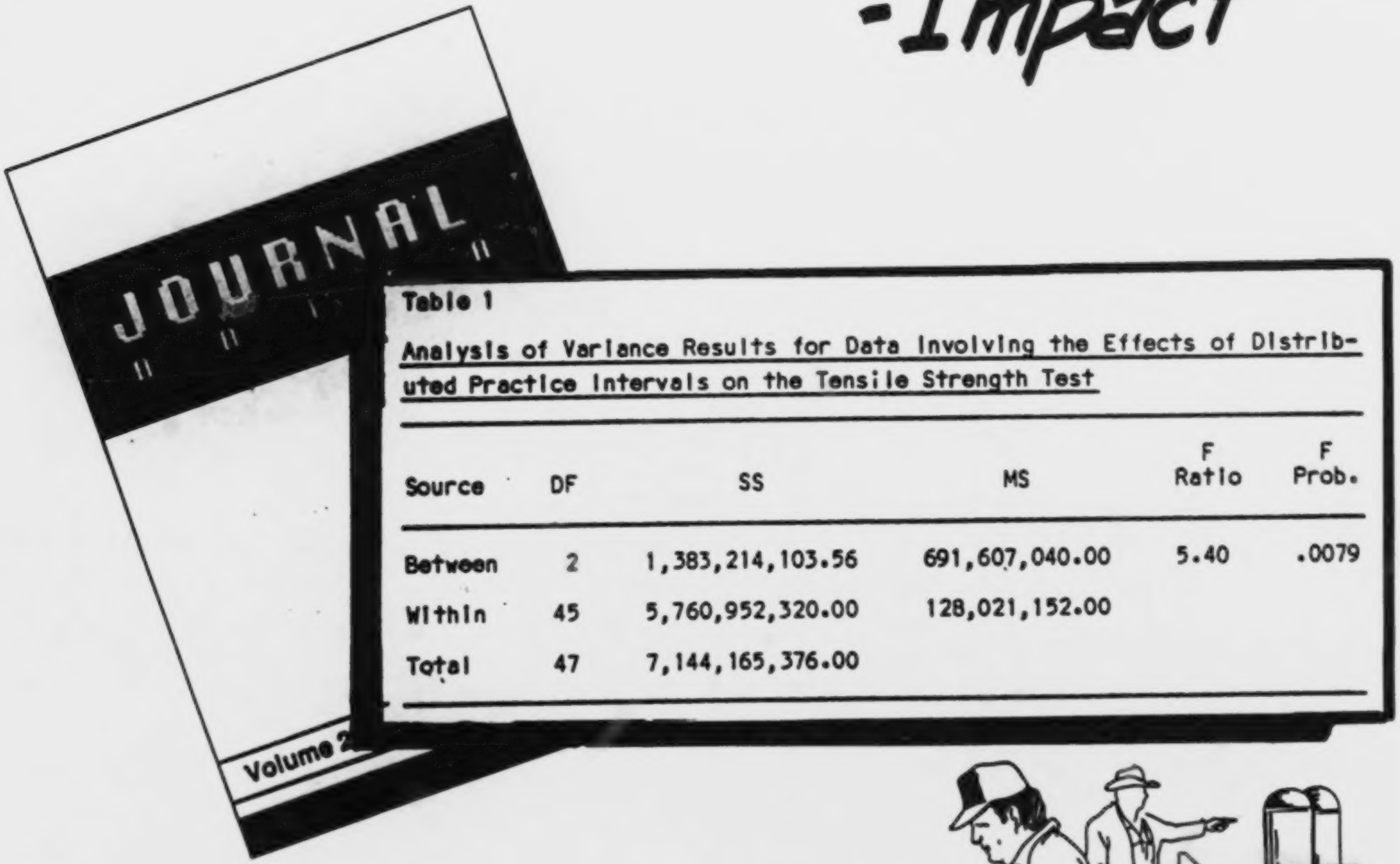
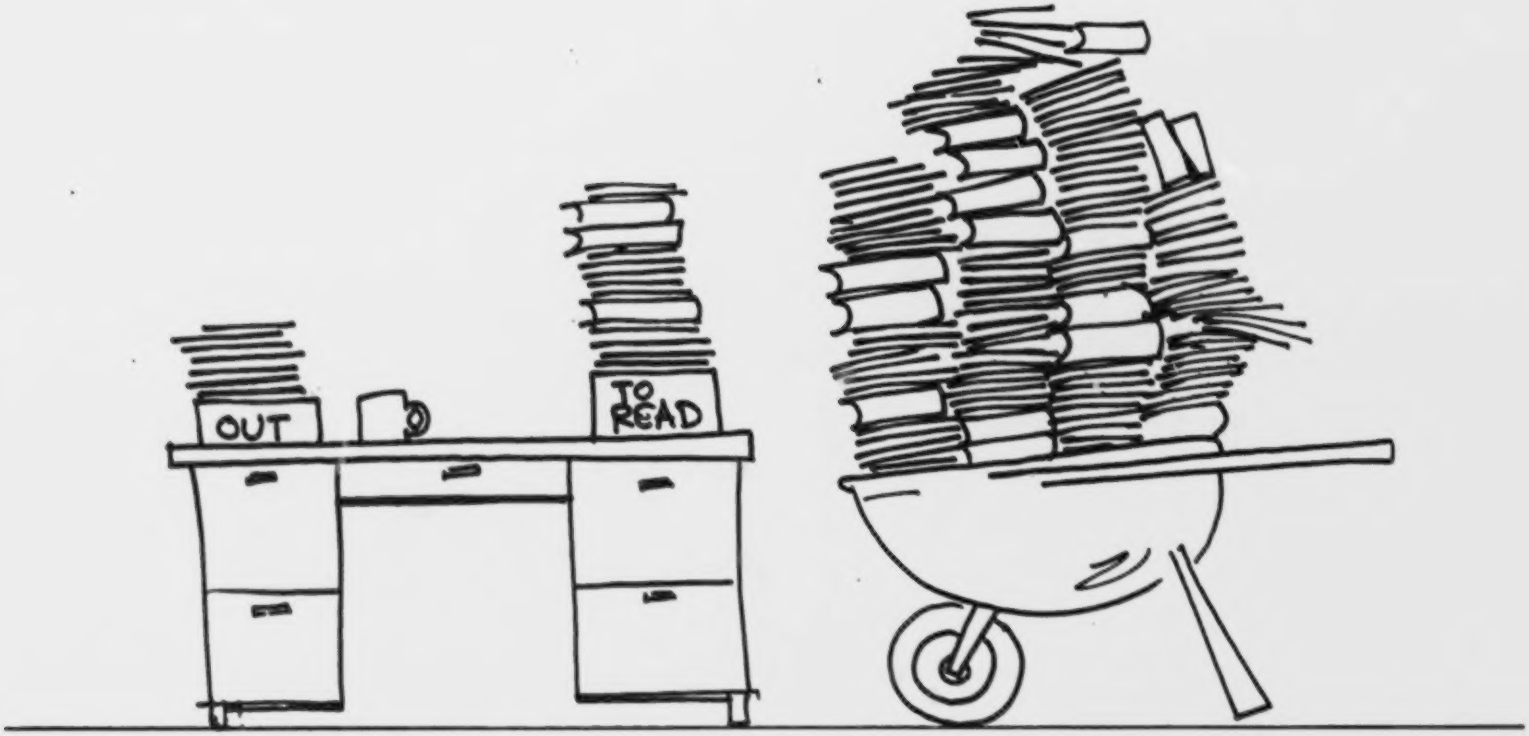

JOURNAL
Volume 2

Table 1

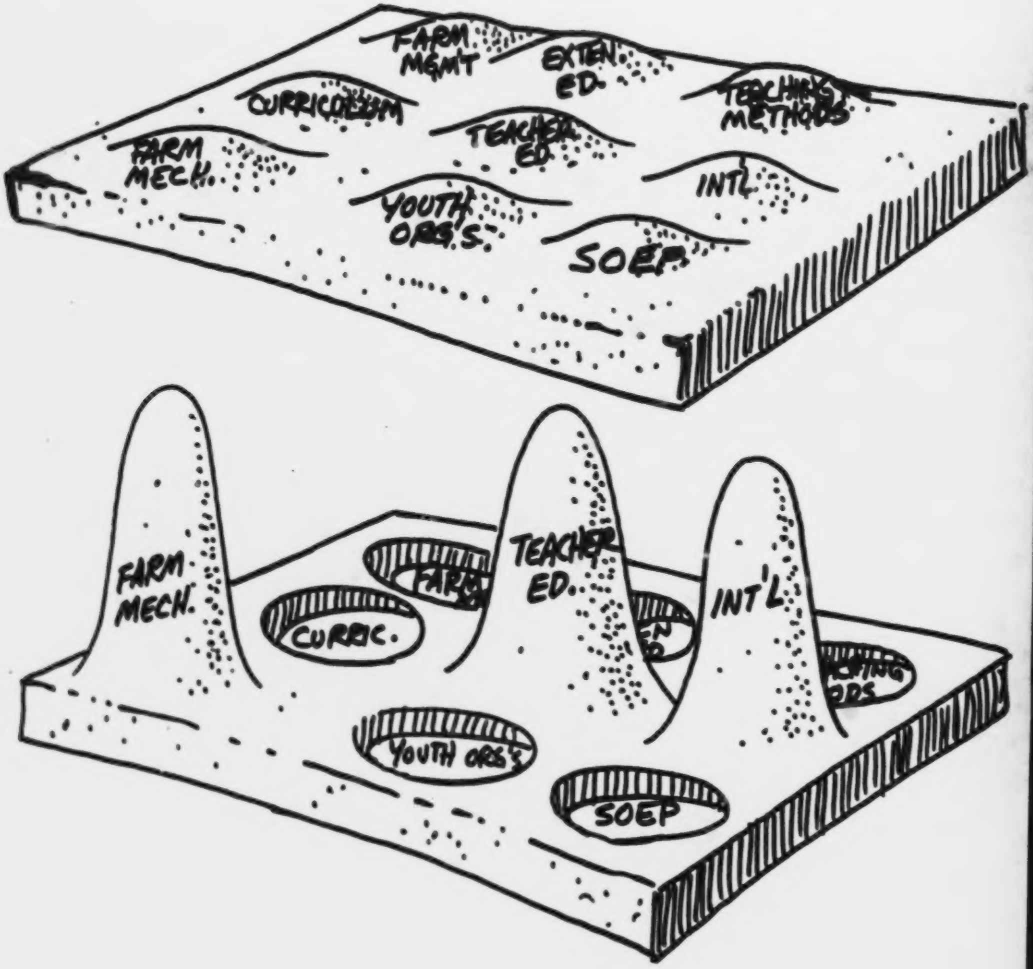
Analysis of Variance Results for Data Involving the Effects of Distributed Practice Intervals on the Tensile Strength Test

| Source | DF | SS | MS | F Ratio | F Prob. |
|---|---|---|---|---|---|
| Between | 2 | 1,383,214,103.56 | 691,607,040.00 | 5.40 | .0079 |
| Within | 45 | 5,760,952,320.00 | 128,021,152.00 | | |
| Total | 47 | 7,144,165,376.00 | | | |

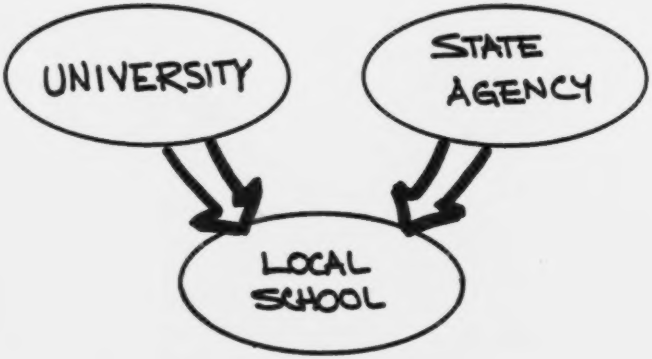
# Information

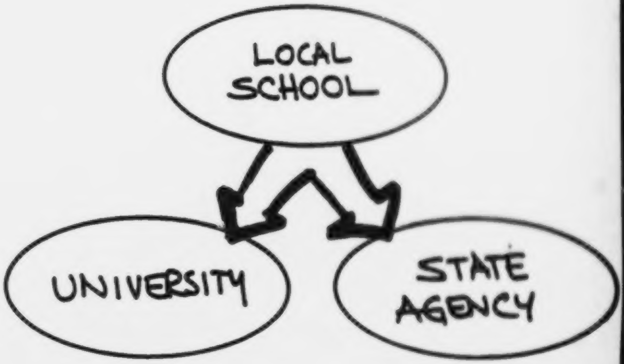


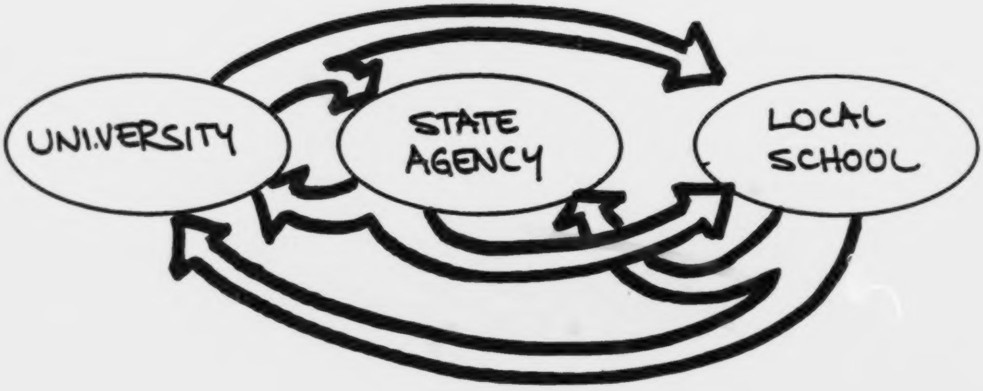
# • FOCUS


FARM MGM'T
EXTEN. ED.
CURRICULUM
TEACHING METHODS
FARM MECH.
TEACHER ED.
INT'L
YOUTH ORG'S.
SOEP
FARM MECH.
TEACHER ED.
INT'L
CURRIC.
YOUTH ORG'S
SOEP

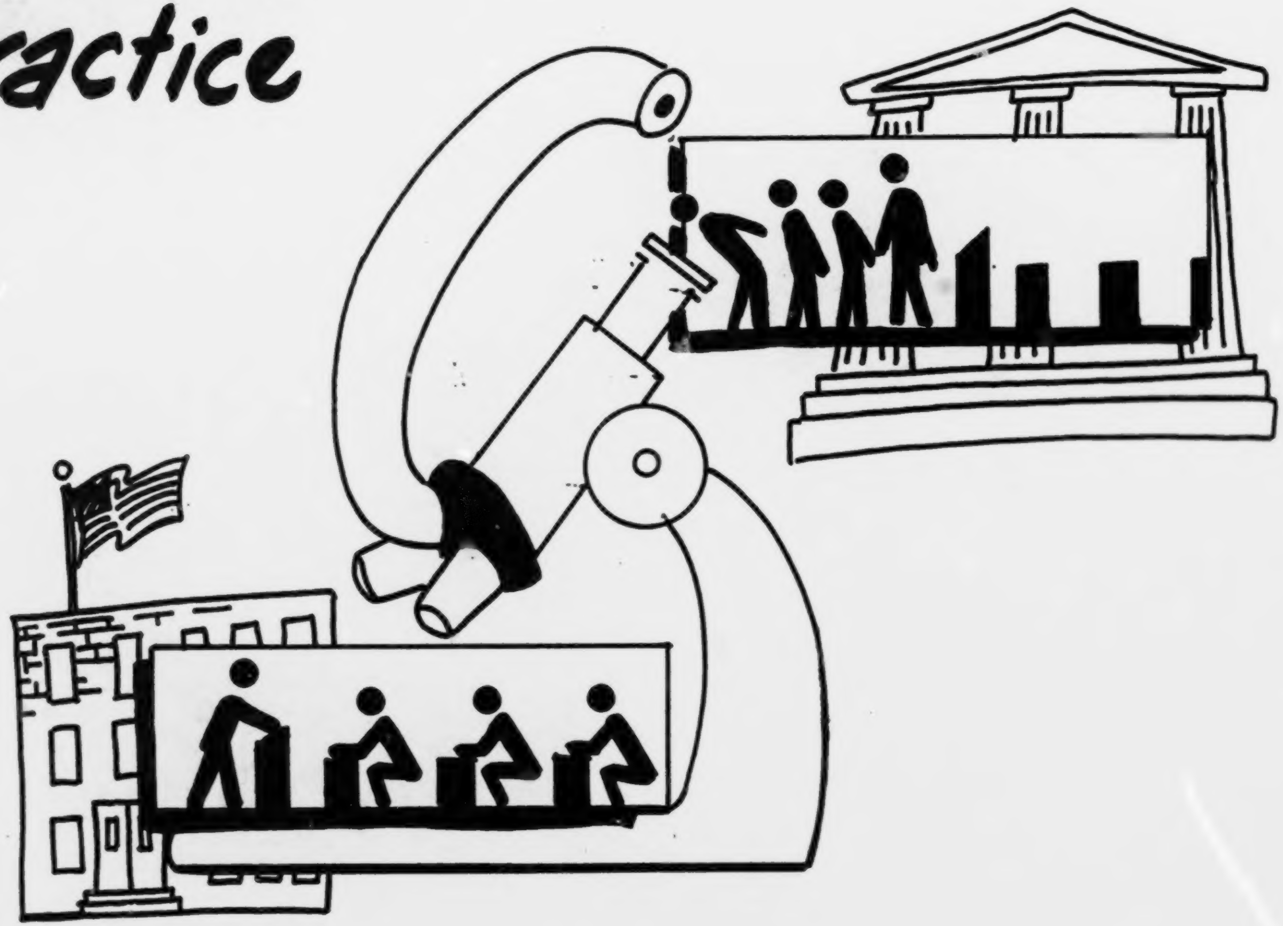
# Roles


UNIVERSITY
STATE AGENCY
LOCAL SCHOOL


LOCAL SCHOOL
UNIVERSITY
STATE AGENCY


UNIVERSITY
STATE AGENCY
LOCAL SCHOOL

# -Reflective Practice



# References

Freire, P. (1978). Pedagogy in Process. New York, NY: Seabury Press.

Freire, P. (1981). Pedagogy of the Oppressed. New York, NY: Continuum Publishing Corporation.

Freire, P. (1986). Education for Critical Consciousness. New York, NY: Continuum Publishing Corporation.

# FACTORS ASSOCIATED WITH PARTICIPATION OF IOWA YOUNG FARMERS IN AGRICULTURAL EXTENSION PROGRAMS

Robert A. Martin
Associate Professor
Iowa State University

Mahmoud Hassan Omer
Post-Doctorate Associate
Iowa State University

Agricultural extension educators are continually searching for ways in which to better serve extension clientele. Without evaluative input from extension clientele, extension professionals may not know steps which should be taken toward providing viable information. Because of rapid changes in technology, various segments of the agricultural industry including vocational agriculture teachers, extension educators, and agribusiness persons should work together to deliver agricultural education programs. To deliver these programs effectively it is necessary to determine the extent to which young farmers use the services of the various agricultural agencies, particularly the agricultural extension program.

## PROBLEM

Agricultural extension educators have at various times expressed that young farmers have been a neglected group regarding the provision of educational activities (Crawford, 1969; Oparaugo, 1980; & Smith, 1980). In a study of factors affecting the establishment of young farm operators in Iowa, Crawford (1969) found that young farm operators were not active in educational programs that were primarily designed to aid them in making farm management decisions. While there is a general recognition of the need to help young farmers (Martin & Bia, 1986), the authors found no other study that focused on the analysis of factors associated with participation of young farmers in agricultural extension education activities in Iowa. As a result, a number of questions become increasingly relevant:

- How aware are young farmers of educational services offered by the Cooperative Extension Service?
- How do young farmers become aware of the services of the Cooperative Extension Service?
- What perceptions do young farmers have of the type and content of the cooperative extension educational programs?
- What channels of communication are the most effective in reaching young farmers?
- What are some reasons for young farmers participation in extension education programs?

Current literature and information was unavailable to answer the above mentioned questions which continue to be of concern to agricultural educators including vocational agriculture teachers, extension professionals, and agribusiness persons. Therefore this study was conducted in an attempt to provide some of the answers to these questions. The need for this study was also based upon the fact that basic information is needed by administrators and educators in order to coordinate planning and conducting educational programs for the members of Iowa Young Farmers Educational Association (IYFEA).

## PURPOSE AND OBJECTIVES

The primary purpose of the study was to determine and analyze selected factors associated with awareness and participation of members of IYFEA in agricultural extension education programs. A secondary purpose of the study was to determine perceptions held by members of IYFEA regarding various agricultural education programs offered by the Cooperative Extension Service.

The specific objectives of the study were as follows:

1. To identify selected occupational and demographic characteristics of members of IYFEA.
2. To identify the types of contact and participation in agricultural extension programs by members of IYFEA.
3. To determine the importance of program planning in the Cooperative Extension Service as perceived by members of IYFEA.
4. To determine the importance of selected program areas provided by the Cooperative Extension Service as perceived by members of IYFEA.
5. To determine the importance of the methods of instruction used by the Cooperative Extension Service as perceived by members of IYFEA.
6. To identify the perceptions held by members of IYFEA based on selected demographic information.

## PROCEDURES

The population of the study consisted of the membership of Iowa Young Farmers Educational Association (IYFEA). There are 400 members of the IYFEA in 1986. This number represented a very small percentage (5%) of the farmers in Iowa between the ages of 18 and 40. A survey of approximately 30% of the membership was determined to be appropriate for gathering input regarding the purpose of the study. The survey instrument was first distributed to the young farmers who attended the Winter Institute (an educational seminar) of the IYFEA on February 9, 1986. A total of 51 members of IYFEA completed the survey instrument. An additional random sample of 75 members of IYFEA was drawn from the population. Questionnaires were mailed the third week in April, 1986. Follow-up letters were mailed the third week in May. During the third week of June, phone calls to the remaining non-respondents were made. Of the 75 young farmers in the sample, 65 did not respond to the initial mailing. Through follow-up procedures, 41 of the non-respondents returned completed questionnaires for a final response rate of 51, or 68 percent.

Independent t-tests were used to determine if significant differences existed between the first group who attended the Winter Institute and the second group of young farmers (the random sample). The results of the t-test indicated there were no significant differences between the two groups. The two respondent groups were considered to be from the same population.

A survey questionnaire was used to collect the data. The survey instrument included the following sections:

1. Importance of program planning. This section included twelve activities used by extension personnel in planning educational programs for young farmers.
2. Importance of selected program areas. This section included selected educational topics in livestock production, crop production, and general agriculture.
3. Importance of extension methods. This section included 17 selected methods that are commonly used by extension personnel in providing assistance to young farmers.
4. Demographic information. This section included selected demographic variables such as sex, age, educational level, and income.
5. Types of contact and participation. This section included selected statement related to the extent of use, level of satisfaction, and level of participation in meetings sponsored by agricultural extension.

Likert-scales were used for the first three sections as follows: 1 = not important, 2 = of little importance, 3 = somewhat important, 4 = important, and 5 = very important.

Statistical procedures yielded percentages, means, and standard deviations, t-tests, and one-way analysis of variance for various information presented in this study. A reliability estimate (Cronbach Alpha) was computed for the instrument and it was determined to be appropriate for this study (.94). All analyses were conducted to answer the specific objectives of the study.

## RESULTS

The results pertaining to demographic information are summarized as follows: 1) the majority of the respondents were between 20 and 39 years of age, 2) the respondent's educational level was relatively high (22.6% had Bachelor's degrees), 3) the majority of the respondents lived on the farm, and 4) overall, the respondents' gross income was also fairly high (36.6% had gross income of $50,000 or above).

The results pertaining to types of contact and participation in agricultural activities are summarized as follows:

1. Nearly 30 percent of the respondents first heard of the Cooperative Extension Service through mass media, 26.47 percent from family members, and 24.51 percent from friends/neighbors.
2. The majority (82.23%) of the respondents indicated that they had participated in meetings sponsored by the Cooperative Extension Service. Only 10 percent had never participated in meetings sponsored by the Cooperative Extension Service.
3. Seventy percent of the respondents indicated that they were satisfied or very satisfied with services/information provided by extension service. Only eight respondents (7.84%) indicated

that they were dissatisfied with the services/information provided by the extension service and 18 respondents (1[illegible].64%) indicated the they had no opinion.

The results pertaining to the importance of program planning in the Cooperative Extension Service indicated that three planning activities received a rating of 4 or higher. These activities were as follows: analyze farming community situation (Mean = 4.15), understand and provide educational programs to meet educational needs (Mean = 4.08), and plan and prepare educational activities (Mean = 4.03). The remaining activities were rated between 3.44 and 3.97 (Table 1).

The results pertaining to the importance of selected educational program areas indicated that four topics in livestock production received a rating of 4 or higher on a 5 point scale. These topics were as follows: production records (4.16), marketing of livestock (4.14), production management (4.04), and health and diseases (4.01). The remaining topics in livestock were rated between 3.59 and 3.87 (Table 2). Five topics in crop production received a rating of 4 or higher on a 5 point scale. These topics were as follows: marketing of crops (4.26), production records (4.06), and soil fertility (4.01). The remaining topics in crop production were rated between 3.63 and 3.91 (Table 3).

The results pertaining to the importance of the methods of instruction used by the Cooperative Extension Service indicated that: the highest rated method was local community meetings (3.82), two instructional methods tied for the second rating: Newspaper articles and county meetings (3.73). The remaining methods were rated between 3.04 and 3.72 (Table 4).

The respondents were very similar in their perceptions regarding the importance of program planning when they were grouped and compared, based on selected demographic variables other than sex. Female respondents rated five planning activities significantly higher than male respondents. These activities were: identify community resources, determine priorities, understand and provide educational programs, prepare educational activities, and plan learning activities.

The respondents were very similar in their perceptions regarding the importance of program areas when they were grouped and compared based on selected demographic variables, other than age and sex. Most of the observed differences involved group three (40 years or over) which consistently rated the importance of the program areas lower than other groups. Female respondents rated livestock production and horticulture significantly higher than male respondents.

The respondents were very similar in their perceptions regarding the importance of extension methods when grouped and compared, based on selected demographic variables other than age and sex. Most of the observed differences involved group three (40 years or over) which consistently rated the importance of extension methods lower than other groups. Female respondents rated educational displays, state meetings, and use of computers significantly higher than male respondents.

## CONCLUSIONS

Based on the findings of this study, the following conclusions were made:

1. The respondents seemed to have a fairly high level of awareness of the Cooperative Extension Service. They also seemed to have a fairly high level of satisfaction with the services/information provided by the Cooperative Extension Service.
2. The respondents indicated that activities of program planning were important. The three activity items rated most important, in descending order, were: analyze farming community situation, understand and provide educational programs, and plan and prepare educational activities.
3. The respondents placed a very high priority rating on educational programs on marketing, production records and production management.
4. The respondents indicated that the highest rated methods of communication included local community meetings, newspaper articles, and county meetings.

## IMPLICATIONS AND RECOMMENDATIONS

Understanding the profile of characteristics of the participants in terms of who participates and reasons for participation is important for those concerned with the process of planning educational programs for the members of IYFEA.

High priority rating for activities which should be considered for successful program planning reflect the need for some other considerations, such as coordination and cooperation among agencies, program planners, and the members of IYFEA.

High priority rating for educational programs in livestock production and crop production, reflects the current situation among the members of IYFEA. Some of the potential educational topics included marketing, production management and production records. This information was consistent with a study conducted by Martin and Bia (1986). These authors indicated that Iowa young and adult farmers placed high priority ratings on educational programs on marketing, planning, and management.

Based upon the results of this study, the following recommendations were made:

1. It appears from this study that extension program planning should be approached primarily from the point of the clientele served, and secondarily from a subject matter point of view.
2. The Cooperative Extension Service should increase the involvement of members of IYFEA in planning and conducting educational programs. Training should be conducted for extension personnel on how to involve local people. Training should be made available for young farmers so they can contribute more to extension programming.

3. Extension professionals, young farmers, and IYFEA leaders should identify and prioritize educational needs.
4. Educational programs should be planned and/or revised for present and future young farmers to emphasize the educational topics with the highest priority (ie. production records, marketing, and production management).
5. Because most of the significant differences in the ratings of the importance of program planning, program areas, and extension methods were attributed to the differences of sex and age, it is important to consider these factors when planning and conducting educational programs for members of IYFEA.
6. Local meetings, county meetings, and newspaper articles are methods that should be used in planning educational programs for young farmers.
7. The results of this study should be shared with extension administrators, IYFEA leaders, Iowa young farmers, and individuals responsible for planning and providing services for them.

In summary, results obtained from this study revealed information regarding characteristics, types of contact and participation, and needs of Iowa young farmers. These results are important for extension educators to be responsive to the needs of young farmers in Iowa.

Table 1

Means, Standard Deviations, and Rankings Regarding Level of Importance of Program Planning as Perceived by Iowa Young Farmers (N = 102)

| Rank | Activities | Valid Cases | Mean | S.D. |
|---|---|---|---|---|
| 1 | Analyze farming community situation to identify educational needs | 102 | 4.15 | .86 |
| 2 | Understand and provide educational programs to meet educational needs | 100 | 4.08 | .87 |
| 3 | Plan and prepare educational activities | 100 | 4.03 | .85 |
| 4 | Determine priorities of community needs | 101 | 3.97 | .85 |
| 5 | Review past programs to identify their strengths and weaknesses | 102 | 3.90 | .90 |
| 6 | Train county extension council to perform their jobs | 98 | 3.87 | 1.05 |
| 7 | Identify community resources, facilities and services to assist with extension programs | 101 | 3.80 | .88 |
| 8 | Plan practical learning activities for target audiences | 100 | 3.79 | .95 |
| 9 | Identify audience for specific programs | 100 | 3.77 | .96 |
| 10 | Identify and involve appropriate community leaders in the program development | 101 | 3.69 | .97 |
| 11 | Plan activities to help individual clientele with problems | 99 | 3.65 | .96 |
| 12 | Involve county extension council in the program development process | 101 | 3.44 | .99 |

Table 2

Means, Standard Deviations, and Rankings Regarding Level of Importance of Selected Topics in Livestock Production as Perceived by Iowa Young Farmers (N = 102)

| Rank | Topic | Not applicable | Valid cases | Mean | S.D. |
|---|---|---|---|---|---|
| 1 | Production Records | 6 | 93 | 4.16 | .86 |
| 2 | Marketing of Livestock | 7 | 94 | 4.14 | .85 |
| 3 | Production Management | 6 | 93 | 4.04 | .79 |
| 4 | Health and Diseases | 6 | 95 | 4.01 | .86 |
| 5 | Herd Records | 6 | 94 | 3.87 | .91 |
| 6 | Feeds and Feeding | 6 | 94 | 3.86 | .87 |
| 7 | Breeding and Reproduction | 6 | 93 | 3.81 | .92 |
| 8 | Use of Computer | 6 | 94 | 3.59 | 1.07 |

Table 3

Means, Standard Deviations, and Rankings Regarding Level of Importance of Selected Topics in Crop Production as Perceived by Iowa Young Farmers (N = 102)

| Rank | Topic | Not applicable | Valid cases | Mean | S.D. |
|---|---|---|---|---|---|
| 1 | Marketing of Crops | 0 | 98 | 4.26 | .80 |
| 2 | Production Records | 0 | 99 | 4.14 | .76 |
| 3 | Production Management | 0 | 98 | 4.12 | .75 |
| 4 | Chemical Safety | 0 | 99 | 4.06 | .91 |
| 5 | Soil Fertility | 0 | 99 | 4.01 | .95 |
| 6 | Pests and Diseases of Crops | 0 | 99 | 3.91 | .92 |
| 7 | Crop Pesticides | 0 | 99 | 3.78 | .97 |
| 8 | New Crop Varieties | 0 | 98 | 3.70 | .93 |
| 9 | Use of Computers | 0 | 98 | 3.63 | 1.05 |

Table 4

*Means, Standard Deviations, and Rankings Regarding Level of Importance of Selected Methods Used by Extension Service as Perceived by Iowa Young Farmers (N = 102)*

| Rank | Methods | Valid cases | Mean | S.D. |
|---|---|---|---|---|
| 1 | Local community meetings | 98 | 3.82 | .92 |
| 2 | Newspaper articles | 99 | 3.73 | .87 |
| 2 | County meetings | 97 | 3.73 | 1.00 |
| 3 | Newsletters | 99 | 3.72 | .90 |
| 3 | Demonstrations | 98 | 3.72 | .83 |
| 4 | Bulletins | 99 | 3.63 | .92 |
| 5 | Area meetings | 98 | 3.60 | .98 |
| 6 | Tours | 99 | 3.59 | .85 |
| 7 | Radio programs | 98 | 3.49 | .55 |
| 8 | Farm visits | 98 | 3.48 | 1.04 |
| 9 | Television programs | 98 | 3.45 | 1.02 |
| 10 | Use of computer | 98 | 3.35 | 1.12 |
| 11 | Educational displays | 98 | 3.31 | .94 |
| 12 | Self study | 98 | 3.27 | .96 |
| 13 | Office conferences | 98 | 3.09 | 1.00 |
| 14 | State meetings | 98 | 3.07 | .88 |
| 15 | Telephone conferences | 98 | 3.04 | 1.04 |

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# PERSONALITY CHARACTERISTICS OF GROUPS OF WISCONSIN VOCATIONAL, TECHNICAL AND ADULT EDUCATION INSTRUCTORS

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## PROBLEM STATEMENT

The problem was to determine if a personality type is associated with a particular group of post-secondary instructors. The concept of personality type was limited to determining the proclivity for one mode of cognitive behavior as opposed to another, as measured by the Myers-Briggs type Indicator (MBTI). Instructors were grouped based on the associations with selected cultural aspects of professional life.

In Wisconsin the post-secondary level of education is referred to as Vocational, Technical, and Adult Education (VTAE). Wisconsin's VTAE agriculture instructors often share common in-service activities with other instructors. Participation in particular types of in-service is a cultural aspect of the role of being a VTAE instructor. The micro-cultures of groups of instructors classified by the subject matter they teach and by the reference group with which individuals associate themselves most closely were also studied.

## OBJECTIVES

The five specific objectives of the study were to determine:

1. the relationship of type of in-service engaged in by instructors, to maintain or enhance their income, to personality type.
2. the relationship of type of in-service engaged in by instructors, but not used to maintain or enhance their income, to personality type.
3. the relationship of amount of participation in different type of in-service to personality type.
4. the relationship of occupational reference group to personality type.
5. the relationship of occupational affiliation to personality type.

Hypotheses were advanced to test the strength of these relationships.

## RELATED LITERATURE/THEORETICAL FRAMEWORK

Jacob Getzels and Herbert Thelen developed a conceptual framework for studying the social system of a school (Getzels & Thelen, 1960). Using this framework, social behavior results as an individual attempts to cope with an environment of various behavioral expectations in ways consistent with his or her own pattern of needs. The congruity between the expectations of society, the institution, the work group, and the individual explains behavior. This congruity is especially evident when applied to elementary and secondary school teachers.

The Wisconsin VTAE system isn't characterized by this same congruity of expectations. Instructors do not all have education majors. Some instructors substitute work experience for academic education in getting a teaching license. School administrators may not come from the same academic or work experience background as instructors. Instructors may retain loyalties to a variety of cultural backgrounds with which they were associated before joining VTAE. Special interest groups disagree on an appropriate mission for a VTAE institution.

Thus, VTAE instructors are likely to be more diverse in their social frame of reference. They do, however, coalesce into groups to which individual members refer themselves in interpreting their life space pertinent to their jobs. These groups fit the definition of being reference groups (Merton & Rossi, 1968). Other ways instructors fall into groups which anchor their experience and behavior in relevant situations are by subject matter area and by the continuing professional education they self-select into.

Surface traits characteristic of instructors within a group may be associated with a particular way of dealing with life or a cognitive style which is common to group members. There may be a role-set style which is common to group members. There may be a role-set associated with a particular group of instructors.

The Myers-Briggs type Indicator (MBTI), which is used to measure cognitive style or personality type, is based on the idea that an individual develops a dominant set which devalues other incompatible ways of interpreting his or her environment (Myers, 1962). The MBTI measures the way people prefer to use perception and judgment. Perception is the process of becoming aware of things, people and occurrences and thus determines what a person sees in a situation. Judgment is the process of coming to conclusions about what was perceived. MBTI preferences have been linked to preferred learning types of individuals.

## PROCEDURES

The population for this study consisted of full time instructors in the Wisconsin VTAE system who taught in the disciplines of Agriculture, Trade & Industry, Business, and General Education. Using a table of random numbers, an equal sample size of 40 respondents was selected from each discipline. Data collection was by questionnaire. A response rate of 77.5% was obtained with 2 mailings and a telephone follow-up. A follow-up of non-respondents indicated that they may differ from individuals who returned questionnaires. Personality characteristics were measured by the MBTI. Data on demographic variables, used to separate instructors into groups, were collected through respondents' self-reporting of information.

### Instrumentation

The study described personality types of groups of Wisconsin VTAE instructors as measured by the Myers-Briggs Type Indicator. Personality type consisted of a profile of basic preferences in regard to perception and judgment. Subjects were scored on separate indices for their preferences for each of the following dichotomous alternatives.

| Preference as between/ | Affects individual's choice as to: |
|---|---|
| Extroversion or Introversion | Whether to direct perception and judgment upon environment or world of ideas. |

| | |
|---|---|
| Sensing or Intuition | Which of these two kinds of perceptions to rely on. |
| Thinking or Feeling | Which of these two kinds of judgment to rely on. |
| Judgment or Perception | Whether to use judging or perceptive attitude for dealing with environment. |

The instrument is a forced choice, self-report inventory designed to measure C. G. Jung's theory of type. It is scored by using a separate scale to measure each of the eight discontinuous preferences of the four pairs of preferences. Separate scores were converted into continuous scores: showing a respondent's position on a continuum between opposite ends of the pair of preferences.

Type of in-service, amount of in-service, reference group affiliation, and subject matter specialization were the demographic variables used to separate instructors into groups. These data were collected through respondents' self reporting of information via a questionnaire.

## Data Analysis

One way analysis of variance using SPSS$^X$ procedure ONEWAY, was used to analyze the following in relation to each separate index measured by the MBTI.

A. The proportional use of each type of in-service to obtain school board credit or renew teaching licenses.
B. The proportional use of each type of in-service within the category of in-service not used to obtain school board credit or renew teaching licenses.
C. The occupational reference group with which a respondent identified.
D. The subject matter certification category under which a respondent taught.

Scheffe's multiple comparison test was run when the F-test showed overall significance.

A two way fixed effects analysis of variance, using SPSS$^X$ procedure ANOVA, was used to analyze whether different levels of participation in both pedagogical in-service and subject matter in-service were related to teachers' scores on the MBTI.

In all cases the .05 level of statistical significance was used for rejection of null hypotheses.

Descriptive statistics were provided by SPSS$^X$ ONEWAY sub-procedure "Group Descriptive Statistics" and by SPSS$^X$ procedure FREQUENCIES.

## RESULTS

### Demographic Characteristics of Groups

In the category of in-service used to renew teaching licenses and/or obtain school board credit, instructors tended to cluster at the extreme ends of the pedagogy-subject matter continuum of in-service participation. The middle categories of participation, which reflect a balanced in-service mix of both pedagogy and subject matter, contained a total of only 20.6% of the respondents. Subject matter in-service dominated the frequency distribution of in-service which participants engaged in but didn't use for either teaching license renewal or school board credit.

Virtually all teachers responding were active in some type of in-service during the previous calendar year. Of the respondents, 15% engaged in no pedagogical in-service and 66% engaged in between 1 and 100 hours. By contrast, there was a relatively even distribution of respondents between the categories of amount of subject matter oriented in-service participation.

A total of 68.3% of instructors associated themselves most closely with a reference group directly connected with the profession of teaching. The next most frequent reference group was the industry connected with the subject matter taught. Conspicuous by their low numbers were the reference group categories of Administration, Study Body, and Professional Associations.

Response rate by Subject Matter Certification Category was approximately the same for Agriculture teachers, General Education teachers, Trade and Industry teachers, and Business teachers.

## Personality Characteristics of Groups

Instructors who had slight preferences for pedagogical in-service tended to be moderately introverted while individuals who had a slight preference for subject matter oriented in-service tended to be slightly extraverted and preferred to function in the world of people rather than in the world of ideas. Respondents who were most divergent from each other on their pedagogy/subject matter in-service mix tended to be closest to teach other in their MBTI scores. Respondents tended to be more sensing then intuitive, more thinking as opposed to feeling, and more judgment oriented than perception oriented.

When respondents were grouped by the type of in-service they participated in above what was used to review their teaching licenses and/or obtain school board credit the following results were observed. The dividing point between whether instructors tended to have an extraversion or introversion preference was also the dividing point between whether they engaged in more pedagogical in-service than subject matter in-service. Instructors who engaged in relatively more subject matter in-service tended to be more extraverted while instructors who engaged in more pedagogical in-service tended to be introverted. All groups of instructors tended to have a preference for sensing. They also showed a moderate preference for thinking except for the group which engaged in in-service heavily dominated by pedagogy. This group displayed a preference for feeling. All groups displayed a preference for being more judgmental than perceptive.

In grouping instructors by amount of in-service participation, respondents were subdivided by the four categories of participation in subject matter in-service and by the four levels of participation in pedagogical in-service. In general, instructors tended to be sensing, thinking, and judging, with no strong tendency for either extraversion or for introversion.

In regard to reference group identification, no MBTI Type patterns were evident with the following exceptions. Instructors who identified most with Administration or with Professional Associations showed a preference for extraversion. Instructors identifying with Professional Associations also had a slight preference for intuition and for feeling.

Instructors were examined in terms of subject matter certification category in which they taught. In this regard Agriculture Instructors and Trade and Industry instructors tended to be slightly introverted while General Education and Business instructors tended to be slightly extraverted. General Education instructors had an intuitive preference while all other groups had a sensing preference. All groups had a thinking and a judging preference.

An additional comparison was made between General Education instructors and all other instructors. The only noteworthy difference was that General Education instructors were more intuitive while other instructors were more sensing.

## Results of Testing Hypotheses

Hypotheses pertaining to each of the objectives, of the study, were formulated. They were tested using analysis of variance. With each hypothesis, a separate analysis was conducted for each of the respondent's four scores generated by the Myers-Briggs Type Indicator.

Instructors who participated in primarily pedagogical in-service did not differ from instructors who participated in primarily subject matter oriented in-service. This was true for in-service which was used for teaching license renewal or for school board credit and thus was registered with the instructor's employing institution and subject to that institutions' approval. It was also true for in-service which was not used for either of these purposes and which instructors engaged in without such institutional influences being applied.

No significant differences were found among instructors based on their level (number of hours) of in-service participation. This was the case for pedagogical in-service participation, for subject matter in-service participation, and for combined levels of both types of in-service.

Another finding was that instructors who differed in their reference group identification did not differ from each other in their MBTI personality type scores.

General Education instructors differed from Agriculture instructors and from Business instructors in that they were more intuitive. They did not, however, differ from Trade and Industry instructors based on using Scheffe's procedure for post hoc pair wise comparisons. No other significant differences were found among Agriculture instructors, Trade and Industry instructors, Business instructors, and General Education instructors.

Another hypothesis compared General Education instructors to other instructors who taught specific vocations. It was found that General Education instructors did differ from other instructors in terms of their being more intuitive. They did not differ from other instructors in terms of extraversion-introversion preferences, thinking-feeling preferences, or judgment-perception preferences.

## CONCLUSIONS

It was concluded that Wisconsin VTAE instructors do not differ in their MBTI mental preferences based on their type of in-service activities, amount of in-service activity, or reference group affiliation. General Education instructors tend to perceive information more in terms of intuition than do the Agriculture or Business instructors.

It was further concluded that instructors teaching in the different vocational disciplines do not differ from each other in their MBTI cognitive styles. They do not process and deal with information differently.

## IMPLICATIONS

This study provides no rationale for in-service pedagogy being based on expectations that a certain type of course will attract instructors with an expected personality type and a preferred way of dealing with course material. Instructors engaging in mostly pedagogical in-service did not have a unigue personality profile from those engaged in in-service oriented toward acquiring new material to teach.

There is also no basis for organizing differential in-service teaching strategies for instructors certified in different vocational disciplines. All vocational instructors tended to have a preferred learning style that focuses on accumulating individual bits of data and attending to practical and factual detail.

General Education instructors, on the other hand, can be expected to screen individual facts from their consciousness so as to leave the mind free to focus on detecting patterns and meanings as well as detecting relationships between different categories of facts. For these reasons, the presentation of material to General Education instructors should be organized differently than it is for vocational instructors.

The study's results suggest that personality type theory not be used by reference group representatives to solicit faculty support for their cause. Each group of instructors, who identified with a particular reference group, contained an array of personality types. This implication applies to administrators and other reference groups which organize activities for teachers.

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# PROFESSIONAL ACTIVITIES AND NEEDS OF EXTENSION EDUCATORS AS PERCEIVED BY EXTENSION EDUCATORS IN ACADEMIC DEPARTMENTS: A NATIONAL STUDY

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## INTRODUCTION

Professional development activities are important in a faculty member's growth (Ducharme, 1981; Scher & Barr, 1979; Scott, 1980). A significant part of this professional growth component is participation in professional organizations, attending conferences, making presentations at these conferences, and publishing research results in refereed professional journals (Scher & Barr, 1979). These activities not only give the faculty member recognition and prestige (Anderson, 1982; Centra, 1983), but also give the individual an identity within the profession (Raths, 1985).

There are certain academic and professional fields in which faculty members can relate to specific professional organizations and the professional identity of the individual is unquestionably linked with those organizations. However, for some professionals, there are no specific professional organizations that meet the need for professional development and identity. Without that identity, faculty members cannot develop a feeling of belonging to a unified body of professionals who speak with unity about their field (Brittingham, 1986).

Several studies have been conducted relating to the scholarly and professional activities of academic faculty members. In addition, many authors have addressed this topic in a philosophical manner.

Robert Scott (1980), in a study of the professional associations of collegiate middle-managers, identified the need for professional associations in the following manner:

> "The demand for information, guidance, and training is so great that each middle-level administrator wants timely data, and ready access to it. When one adds the desire for recognition and the status that comes from being a part of a recognized group, it is easy to understand the dramatic growth of complex national associations as important organizations for middle-managers." (Scott, 1980, p. 133).

The substitution of other professions for middle-managers would make this statement appear to be just as true.

Elder (1984) reported an effort by Donohoe (1980, personal correspondence) to validate the importance of participation in a professional association for women in education administration. Fifty-five percent of the respondents reported that such participation had been important to relations with other institutions and to the contacts made for both the individual and the institute.

In a study of teacher educators' scholarly activities, Raths (1985) addressed the questions of: to what extent do teacher educators inquire and carry out research in the field of teacher education; and to what extent do teacher educators identify with the field of teacher education. One of his initial thoughts was that if teacher educators were not producing much research in teacher education, one factor might be that they do not identify with the field. The findings of the study indicated that teacher educators tended not to do research in teacher education itself. As to the question of identification with the field of teacher education, the data suggested that the teacher educators in the sample identified strongly with the organizations associated with the subject matter areas they taught, not the general field of teacher education. One of Raths' suggestions to improve this situation was to organize a professional association to meet the specific needs of teacher education researchers. The results of this study could be related to the situation in Extension education where many Extension specialists housed in academic departments to teach Extension education and conduct Extension education research are often strongly affiliated with subject matter organizations, such as animal science, agronomy, evaluation, personnel development, or home economics organizations.

Scher and Barr (1979), in an essay on survival techniques for new faculty members, emphasized the importance of professional involvement in the following:

> "Keeping up with the profession is necessary. A well-established professional is respected. Maintaining oneself in the profession includes reading, researching/writing, attending conferences, workshops, seminars, corresponding with colleagues, and being concerned with ethical and legal issues. Becoming a deeply committed member of the professional world is a source of continued support. In addition, this will assist you in entering the circle of capable, established individuals who have power in the institution." (Scher & Barr, 1979, p. 532).

Anderson (1982), in an address to speech communication educators, said that:

> "...an association makes available a refereeing process, a jurying, essential not only to the scholar but also to the consumer. Yes, the refereeing contributes to recognition, promotion and tenure. And don't sell that short. But more importantly, it sorts out the chaff that may not be of value. ...No discipline exists without a professional-scholarly association to bind it together. ...our professional organizations will remain essential for our research and scholarship..." (Anderson, 1982, pp. 7-12).

Ducharme (1982) listed both personal and professional needs of faculty members in schools, colleges, and departments of education. Included in the list in the professional need category were:

> "Explaining ourselves as professionals to others, understanding our professional traditions and history,...developing more and better links with national and regional individuals and programs,... keeping better documentation of our efforts, asserting ourselves to claim what is ours." (Ducharme, 1981, p. 32).

Elder (1984), writing on the importance of professional involvement of women administrators, indicated that "participation in the professional association...assures at least some degree of visibility for the individual and the institution." (Elder, 1984, p. 17).

Brittingham (1986), in a summary of faculty development in teacher education, said:

> "...the emphasis on continuing to develop the teaching skills and research productivity of the faculty is likely to continue. And the long-recognized value of conference attendance and sabbatical leave toward refreshing faculty professional energy and renewal will remain as vital strategies." (Brittingham, 1986, p. 2).

She also proposes an agenda for faculty development with one of the recommendations being a better understanding of the profession by faculty members. But, this is not always easy.

> "In some academic and professional fields, faculty members can relate to one principal professional association. ...The situation in teacher education is more confused, leaving many faculty members isolated and ill-informed about the structure of the professional associations in teacher education and the current discussion of the issues facing the profession. ...Although individual faculty members may have memberships in several of the associations and although journals may be available in the library and the department, the fact remains that there is not one clear voice speaking to teacher educators. And without that one clear voice in frequent communication with its members, faculty members do not develop a clear sense of themselves as a unified body of professionals who speak with reasonable unity about their place within the institution." (Brittingham, 1986, p. 3).

Extension educators in academic departments face this same dilemma. For the most part, Extension professional organizations are designed for the practitioner in the field. Extension educators who seek professional associations and activities often join associations that deal with the technical subject matter of the Extension educator or have Extension subgroups within the organization (i.e., American Evaluation Association, American Association of Teacher Educators in Agriculture). The opportunities for discussion and interaction with peers on the important issues facing Extension educators in the areas of Extension academics and research are, therefore, somewhat limited. The fragmentation of Extension educators into these various subject matter organizations also precludes the development of a unified professional identity for these individuals.

With the value of professional development being identified as a major benefit to both the individual and the profession, importance lies in recognizing what needs members of a profession have and what opportunities are available to them. Extension educators, as a professional group, have not been studied to determine opportunities for professional growth or the needs they have for such opportunities. Extension educators housed in academic units in universities may also be one group which has no specific professional identity.

No research of Extension professionals was found which studied the perceived importance of professional organizations, the outlets for collegial activities which contribute to professional identity. Thus, the study provided valuable baseline information to help the Extension profession determine issues for future consideration and action.

## PURPOSE AND OBJECTIVES

The primary purpose of the study was to determine the current status of Extension educators' activities and perceived needs related to professional identity. Specific research objectives were: (1) to determine where Extension educators held membership in professional organizations, participated in professional organization programs, presented results of Extension research to others in the profession, and published Extension research results; (2) to determine what Extension educators' perceptions were as to the importance, availability, and need of various components of professionalism; (3) to determine what Extension educators felt was their professional identity; and (4) to determine who Extension educators identified as their professional peers.

The study examined the following characteristics of Extension professionals: (1) professional organizations in which Extension educators held membership; (2) number and type of professional meetings attended; (3) number of presentations given at professional meetings; (4) type of periodicals in which Extension educators published research and the number of articles published; (5) perceptions of Extension educators relating to the importance and availability of three components of professional activities in Extension education (collegial activities, conducting research, and sharing research); (6) job title and a self-description of position; (7) perceptions of identity of professional peers; and (8) demographic information related to position.

## PROCEDURES

### Design

The research design of the study was descriptive, allowing the researchers to describe the nature of the characteristics studied. Frequencies, means, and standard deviations were used to summarize data.

### Population

The accessible population consisted of 118 Extension educators in academic departments identified by polling Extension directors and agricultural education department chairs at land-grant institutes (R. A. Martin, personal communication, June 2, 1987). All of these educators were included in the study.

The procedure used to identify the population of Extension educators for this study could have resulted in the exclusion of individuals whose directors or department chairs did not respond to the poll. The absence of these individuals from the study represents a limitation of the generalizability of the results of the study to the accessible population.

## Data Collection

Data were collected in the months of August and September, 1987, using a mail questionnaire. The target population was Extension educators in academic departments of agricultural education and adult and continuing education. The accessible population was 118 Extension educators identified by Extension directors and department chairs at land-grant institutes. All were included in the study. The total number of usable responses was 79, for a data sample of 67%. Data collected by telephone from a 10% sample of non-respondents were compared using t-tests (Alpha = .05). No significant differences were found. According to Miller and Smith (1983), because the data were similar for respondents and non-respondents, results were generalized to the accessible population used in the study.

## Instrumentation

The instrument was a mail questionnaire developed by the researchers. The questionnaire contained three sections dealing with the professional activities and perceptions of the respondents. Part I included items relating to the Extension educator's membership and participation in professional organizations, presentations of Extension research at meetings, and publication of Extension research in professional journals/periodicals. Part II included 12 items relating to the perceptions of the respondents as to the importance and availability of three components of the professional activities of Extension educators: collegial activities, conducting research, and sharing research. The responses to these items were scaled on four-point Likert-type scales with 1 = not important/not available to 4 = very important/very available. Part III contained items relating to the professional identity of the respondents in the areas of job title and description, tenure, percentage of official appointment, self-description of job position, and the identity of professional peers.

Content validity of the instrument was determined using a panel of experts. The instrument was pilot-tested for reliability using a test-retest procedure with a sample similar to the respondents. Percents of agreement were calculated and items below 70% agreement were revised. Cronbach's alphas for the summated scales ranged from .54 to .82.

## Data Analysis

Descriptive statistics (frequencies, percentages, measures of central tendency and variability) were used to organize and summarize the data. T-tests were used to compare groups. The SPSSX computer statistical program was used to compile the data.

## RESULTS

The results section is organized by objective.

### Objective One

Data for organizations, meeting attendance, paper presentations, and publications were reported for the years of 1984-1987 and were collapsed into three categories: Extension, Agriculture (non-Extension), and General (Table 1). Forty-three percent of the respondents reported membership in an Extension organization compared to 75% belonging to at least one agricultural organization and 73% reporting membership in a general organization. Six percent of the respondents reported no membership in professional organizations. The mean numbers of organizational memberships for individual respondents were: .68 (sd = .91) for Extension organizations, 2.08 (sd = 1.89) for agricultural organizations, and 2.01 (sd = 1.90) for general organizations.

Attendance at Extension meetings was reported by 33% of the respondents, 75% attended agricultural meetings and 77% went to general meetings. Nine percent reported attending no professional meetings in the 1984-1987 time frame (Table 1). Of the 612 total meetings attended by respondents, 80 (13%) were Extension meetings, 293 (48%) were agricultural meetings, and 239 (39%) were general meetings.

Paper presentations at Extension meetings were reported by 18% of the respondents, 30% presented at agricultural meetings, and 32% presented papers at general meetings. Forty-seven percent reported no paper presentations (Table 1). There were 151 presentations reported by those responding, of which, 24 (16%) were at Extension meetings, 50 (33%) were at agricultural meetings, and 77 (51%) were at general meetings.

Extension-related periodicals contained publications by 15% of the respondents, 24% published in agricultural journals, and 10% had published in general outlets. Sixty-three percent reported having no publications (Table 1). Of the 77 total articles published by 39 individuals, 21 (27%) were published in Extension periodicals, 45 (58%) were in agricultural periodicals, and 11 (14%) were in general periodicals.

### Objective 2

When asked about the importance and availability (ultimately indicating a need) of the above-described professional components, respondents reported their perceptions in a three-domain framework:

collegial activities, conducting research, and sharing research. A need was calculated by subtracting the mean availability score of the items related to each of the three domains from the mean importance score (both on a four-point Likert-type scale). The higher the need score, the stronger the perceived need. A mean need score of .90 was identified for collegial activities. Activities related to conducting research produced a mean need of 1.31 and the mean need for sharing research was 1.17 (Table 2).

## Objective 3

Information was collected about the position of the respondent. The average tenure in the position was six years. Respondents were asked for the percentages of their official position in the areas of Extension, research, resident instruction, and other duties. The average percentage of Extension appointments was 41%. Research had a mean appointment of 9% and resident instruction had a mean appointment of 40%. The Other category averaged 7% and included administrative duties for the most part.

Official titles, as reported by the respondents, were categorized into the headings of Resident Faculty, Department Administration, Extension Specialist, and Extension Administration. Responses ranged from 32% resident faculty, 22% department administration, 30% Extension specialist, and 16% Extension administration (Table 3).

When asked to self-describe their positions, the percentages were 55% resident faculty, 9% department administration, 31% Extension specialist, and 5% Extension administration (Table 3).

## Objective 4

When asked to identify professional peers, however, the respondents' percentages switched to 57% reporting resident faculty, 9% department administration, 22% Extension specialist, 8% Extension administration, and 4% others (mostly private sector technical experts) (Table 3).

## CONCLUSIONS AND RECOMMENDATIONS

The following conclusions were drawn:

1. Extension educators held membership in twice as many non-Extension professional organizations as in Extension organizations.

2. Extension educators participated in non-Extension organizations, through attendance and presentations at professional meetings, at a much greater frequency than in Extension organizations.

3. Extension educators published research articles more frequently in agricultural periodicals than in Extension periodicals, but published less frequently in general periodicals than in Extension periodicals.

4. Extension educators perceived a need for more collegial activities, research opportunities, and sharing of research in Extension education as determined by the quantitative measurements used in this study.

5. Extension educators perceived differences in professional identity as they described their official title, their work, and their professional peers.

6. Even though non-respondents did not differ significantly from respondents, the frame used to determine the population may not have been respresentative of all Extension educators.

The following recommendations are based on the findings and conclusions of this study.

1. Professional organizations, either Extension or containing Extension components, should examine whether they are adequately meeting the professional needs of Extension educators in the areas of collegial activities, conducting research, and sharing research. If not, the organizations should develop a plan to meet these needs.

2. Extension educators in academic units should determine if a professional organization exists that can meet their needs.

3. If no organization exists to meet their professional needs, Extension educators should investigate the feasibility of establishing such an organization.

4. Extension educators should voice concerns relating to professional identity to administrators and peers.

5. A follow-up study should be conducted, based on this study, using an all-inclusive frame of Extension educators in academic departments.

6. A more in-depth investigation should be conducted of the professional needs situation facing Extension educators in academic departments using qualitative methodology, such as interviews, to determine why these needs exist and how to better satisfy them.

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Table 1. Frequencies and percentages of respondents indicating professional membership, meeting attendance, paper presentations and publications by type, 1984-1987.

| Type of Organization, Meeting, or Periodical | Respondents | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Holding Membership in Professional Organizations | | Attending Professional Meetings | | Presenting Papers at Professional Meetings | | With Articles Published in Periodicals | |
| | Freq. | Percent | Freq. | Percent | Freq. | Percent | Freq. | Percent |
| Extension | 34 | 43 | 26 | 33 | 14 | 18 | 12 | 15 |
| Agriculture | 59 | 75 | 59 | 75 | 24 | 30 | 19 | 24 |
| General | 58 | 73 | 61 | 77 | 25 | 32 | 8 | 10 |
| None | 5 | 6 | 7 | 9 | 37 | 47 | 50 | 63 |

Note: Columns do not sum to 100% because individual respondents may be represented in more than one type of organization, meeting or periodical.

Table 2. Mean importance, availability, and perceived need of professional components of Extension education.

| | Importance | Availability | Perceived Need[a] |
|---|---|---|---|
| Collegial Activities | | | |
| Mean | 3.29 | 2.38 | .90 |
| sd | .44 | .60 | .79 |
| Conducting Research | | | |
| Mean | 3.26 | 1.97 | 1.31 |
| sd | .67 | .60 | 1.00 |
| Sharing Research | | | |
| Mean | 3.40 | 2.25 | 1.17 |
| sd | .59 | .57 | .89 |

[a] Mean Perceived Need = Mean Importance - Mean Availability using a 4-point scale. A positive score indicates need.

Table 3. Frequencies and percentages of official titles in perceived job descriptions, and perceived professional peers of Extension educators.

| | Official Title | | Job Description | | Professional Peers | |
|---|---|---|---|---|---|---|
| | Freq. | Percent | Freq. | Percent | Freq. | Percent |
| Resident Faculty | 25 | 32 | 43 | 55 | 44 | 57 |
| Department Administration | 17 | 22 | 7 | 9 | 7 | 9 |
| Extension Specialist | 24 | 30 | 24 | 31 | 17 | 22 |
| Extension Administration | 13 | 16 | 4 | 5 | 6 | 8 |
| Other | -- | -- | -- | -- | 3 | 4 |
| TOTAL | 79 | 100 | 78[a] | 100 | 77[b] | 100 |

[a] One non-response

[b] Two non-responses

# Factors Associated With Participation of Iowa Young Farmers in Agricultural Extension Programs

## A Critique

Ed Osborne, University of Illinois -- Discussant

The stated purpose of this study was to determine and analyze selected factors associated with awareness and participation of members of the IYFEA in agricultural extension programs. The nature of client participation in educational programs offered by the Cooperative Extension Service certainly merits examination, particularly in this time of strict program accountability. Adult education in agriculture continues to be a complex and somewhat difficult scene to grasp and manage for improvement. We need to continue our research efforts in adult education so that we might have a more solid basis for making programmatic decisions.

### Strengths of the Study

In general I found this research paper to be well organized and easy to follow. The research problem was clearly stated. Research questions and objectives were outlined in an orderly manner. This is a study that builds upon recent, previous research and has practical significance for agricultural educators. An accurate frame for the population was defined. The descriptive survey approach to conducting this study was appropriate. While the sampling procedures were a bit unorthodox, the researchers did statistically compare responses from the purposeful and random samples, finding no differences. The results were presented in a concise, systematic manner, and appropriate conclusions were presented based upon the findings presented.

### Suggestions for Improvement

My comments pertaining to improving the study will focus on the theoretical design of the study and the technical aspects of conducting research of this type. Clearly the major weakness in this study was the lack of congruence between the title, problem statement, purpose statement, and objectives. While the authors suggested that the paper would analyze factors associated with participation in CES programs, I found little evidence to suggest that this primary research goal had been achieved. Some data were reported on the level of participation and satisfaction with CES programs, but factors related to these participation levels were not addressed. The research questions and objectives should include statements pertaining to the factors associated with program participation (or lack of). Further discussion of previous research findings on clientele participation and feedback was needed to gel the theoretical framework for the study. To me, the perceptions of CES program planning activities seemed to be an out-of-place component of this study. The rationale for focusing only on members of the IYFEA needed to be more clearly presented, especially since this group represents only five percent of all young farmers in Iowa. The procedures section of the paper needed more detail. Why was a 30 percent sample size selected? Which scale in the instrument had the reported .94 reliability estimate? How was instrument validity determined? Was any follow-up done with the nonrespondents (32 percent of the sample)? What percent of the respondents were female? As consumers of this research, we need to see the statistics supporting the group comparison findings. The conclusions were straightforward and well supported. However, no conclusions were presented that dealt with client participation in CES programs. While most of the recommendations were appropriate, I found no support for recommendation #2. Does recommendation #1 suggest a change from current practice? In regard to recommendation #6, several other methods were found to be as effective as those listed.

Where do we go from here with our research efforts in adult education? As the authors suggested, our research in this area needs to be more encompassing, examining the complementary and duplicate aspects of adult education in agriculture provided by various agencies.

# Personality Characteristics of Groups of Wisconsin Vocational, Technical, and Adult Education Instructors

## A Critique

Ed Osborne, University of Illinois -- Discussant

The purpose of this study was to examine the relationship between personality type, as measured by the MBTI, and participation in inservice activities by postsecondary instructors. A secondary purpose was to consider personality type in relation to reference and subject matter groups identified by instructors. Considerable research has been done in recent years that has described teaching and learning styles and how they may interface in an educational setting. Well designed research that contributes to what we know about teaching and learning processes continues to be needed. Unfortunately, this study focused upon ancillary concerns, rather than the more pressing issues in this area of inquiry.

### Strengths of the Study

This investigation utilized a recognized instrument with an established national norm. The MBTI has been widely used as a reliable and valid measure of personality type. The authors provided considerable discussion of the nature of this instrument and the conceptual framework underlying its development and use. Definitions were presented of most key terms pertinent to the study. I found the procedures section to be well written, and the objectives of the study were clearly delineated. The data analysis techniques appeared appropriate, given the brief discussion provided in the paper of some variables. An acceptable response rate was obtained, and follow-up procedures were initiated to analyze the characteristics of nonrespondents. The conclusions presented were clear and supported by the findings.

### Suggestions for Improvement

The stated problem in the study was " . . . to determine if a personality type is associated with a particular group of postsecondary instructors". I would suggest that this is not a problem statement at all, but rather an objective or statement of purpose. This error in conceptualizing the study pinpoints the major weakness of this research. After carefully reading the paper several times, I was still unsure of the need for or possible implications of this study. What research problem was investigated? What practices or trends in the field suggested a need for scientific inquiry in this area? What empirical research or logic was evident that suggested a relationship between the dependent and independent variables? In the procedures section of the paper, a description of the population size and the rationale/basis for the sample size was needed. Why were instructors in general education included in the study? I found the results section of the paper to be incomplete and sometimes misleading. No supporting statistics were presented for any of the hypothesis tests. More complete description of the group characteristics was needed. Was type of inservice a continuous or categorical variable? I was confused by the term "proportional use" when describing data analysis procedures for type of inservice activity. While I don't believe that correlational coefficients were calculated, the language used to describe the personality characteristics of groups suggested such. Since differences were found between the respondent and nonrespondent groups, some cautionary statement should be made regarding generalizability of the findings. Finally, a discussion of the MBTI personality type of these teachers, compared to the national averages, might be of interest.

# Professional Activities and Needs of Extension Educators as Perceived by Extension Educators in Academic Departments: A National Study

## A Critique

Ed Osborne, University of Illinois -- Discussant

The purpose of this study was to determine the current status of extension educators' activities and perceived needs related to professional identity. This is a good piece of research and one clearly warranted by the current trends in agricultural and extension education. The gist of this study has been the topic of discussion in many AATEA meetings, as well as other professional organizations. This study addresses a very timely research problem and provides a beginning look at what needs to be done or might be done to improve the opportunities for professional affiliation and activity by extension educators. This research makes a very significant contribution to our knowledge base in this area.

### Strengths of the Study

I was extremely impressed with the clarity and organization evident throughout this paper. These researchers demonstrated excellent skills in conceptualizing the study, conducting the research, and reporting the research to colleagues. The framework for the study was based upon numerous citations from the literature that clearly built a need and rationale for this research. Current practice was described, leading up to a clear, concise problem statement. In many ways, this is a piece of work to be modeled by other researchers. This was a census study, involving an accessible population of 118. The researchers admitted the chance of possible frame error and cautioned the reader regarding generalization of the findings. Validity and reliability concerns were addressed, as was nonresponse error. I found all conclusions and recommendations supported by the findings presented.

### Discussion/Suggestions for Improvement

A few questions came to mind as I studied the procedures and results sections of the paper. What follow-up procedures were used to achieve or improve the response rate of 67 percent? Who comprised the pilot test sample? I needed more information about the 12 item scale pertaining to the importance and availability of professional activities. It would be very helpful if these 12 items were included in the paper. Although test-retest and Cronbach's Alpha reliability estimates were performed, my notes tell me that Cronbach's Alpha is appropriate for response scales containing five or more items. Your four item response scale may have influenced your alpha coefficients. It seems a more direct approach to determining perceived needs could have been taken with perhaps more telling results obtained.

As I read the results section, I wondered where AATEA fits into the categories of extension, agriculture, and general professional organizations and publication outlets. If the respondents had been asked to indicate the specific organizations, journals, and meetings in which they participated, more useful data would have been obtained. I found the results of the study to be troubling, and I considered possible explanations. I was astounded to see that 47 percent and 63 percent, respectively, of the respondents had not presented a paper or published an article in the last three years. Eighty percent saw themselves as resident faculty or extension specialists. Do they not publish because of lack of pressure to do so, lack of interest, or lack of appropriate outlets for their research? With resident faculty, extension specialists, and administrators contained in the population, this diversity may account for some of the results obtained. How was "extension educator" defined in the study? Perhaps it is defined too broadly and needs to be redefined to include those primarily involved in educating current and future extension personnel about the extension system. The conclusions stated should be read with care. For example, did extension educators join twice as many nonextension professional organizations because there is a shortage of extension organizations, because membership in one extension organization is sufficient, because they want breadth in their professional affiliations, or some other reason? As the recommendations suggest, more in-depth study is needed to bring greater understanding to the professional needs of extension educators.

# AN ANALYSIS OF THE OPINIONS OF SECONDARY SCHOOL PRINCIPALS OF SCHOOLS THAT HAVE EITHER DROPPED, ADDED OR MAINTAINED SECONDARY AGRICULTURE PROGRAMS IN MICHIGAN FROM 1982 TO 1986

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## INTRODUCTION

Secondary agricultural education in Michigan has been undergoing fundamental change. Between the years 1979 and 1985 enrollment declined by over 40%[1]. During these years more agriculture programs were dropped than were added in the public schools[2]. Many of these programs were dropped from the curriculum based on the advice of school principals. The question arose, "On what basis do principals choose to drop, add or maintain secondary programs of agriculture?"

Jewell[3] reported school administrators felt the large majority of students received an adequate education in vocational agriculture. Shumacher[4] and Kahler reported a very positive attitude of school administrators toward vocational agriculture in Iowa.

Local school districts shoulder about 80% of the cost of the secondary agriculture program in Michigan. Thus, the decision to drop, add or maintain the program has been made relative to how local school districts view the importance of agriculture compared to other alternatives available for their district. The opinions of principals about agricultural education programs in schools that had either dropped, added or maintained programs during a given period of time was important in understanding local programing decisions.

## PURPOSE AND OBJECTIVES

The study was designed to determine how secondary principals, who had been involved in recent actions to either drop, add or maintain secondary agriculture programs, felt about key aspects of the program. Questions, relative to the conduct of the secondary agriculture program, were formulated in an effort to determine whether or not variables could be isolated that led school administrators to drop, add or maintain agriculture programs. The identification of variables that led schools to drop, add or maintain programs could be utilized to strengthen future programs.

The primary objectives of the study were to:

1. Determine the variables that influenced principals to either drop, add or maintain their secondary agriculture programs.
2. Determine if there were differences in perceptions of the agriculture program by principals in schools that had either dropped, added or maintained their agricultural programs.

## PROCEDURE AND ANALYSIS OF DATA

A list of key variables concerning the conduct of secondary agriculture programs were assembled. Three interview schedules were developed. The instruments were submitted to a panel of Agricultural Education at Michigan State University and the Michigan Department of Education to establish content validity. A reliability coefficient was not attained because of the narrative nature of the instrument.

Records at the Michigan Department of Education were reviewed to identify all programs that had been either dropped or added during the years 1982 to 1986. The review revealed that during these years 17 programs were dropped in the state and five programs were added. This group of dropped and added programs and a random sample of 16 programs that had been maintained during the period were the sample for the study.

To facilitate cooperation with participants, a former high school principal was hired to conduct telephone interviews with principals who had been involved in dropping, adding or maintaining agricultural programs in the curriculum of the school. The interviews were all completed during the month of April 1987. The interviewer was able to contact 100% of the principals identified to be in the study.

The data were analyzed by reviewing the comments of the principals and attempting to quantify variables to establish key perceptions of principals. Descriptive statistics were used to analyze the data.

The principal's comments were compiled under each variable so that the depth and breath of their feelings could be interpreted. Both the number of comments and intensity were used to arrive at conclusions of the perceptions of principals.

## RESULTS

The data in Table 1 revealed that funding the secondary agriculture program did not have a significant influence on whether to keep the program as reported by principals in schools that chose to maintain programs. Principals from schools that dropped agriculture programs did not give a clear answer of the affect of funding relative to their decision to drop the program. The feelings of administrators in schools that had added programs was that funding was influential in their decision to add the program.

Table 1

Role of Funding in Keeping A Secondary Agriculture Program

| Action | n | No Influence | | Influenced | | No Answer | |
|---|---|---|---|---|---|---|---|
| | | n | % | n | % | n | % |
| Maintained | 16 | 12 | 75.0% | 3 | 18.8% | 1 | 6.3% |
| Dropped | 17 | 3 | 17.6% | 1 | 5.9% | 13 | 76.5% |
| Added | 5 | 1 | 20.0% | 3 | 60.0% | 1 | 20.0% |

Table 2 contains data that showed, for 50% or more of the administrators interviewed from schools that maintained or added, the presence of an FFA Chapter had a positive influence on keeping or adding the agriculture program. Only 23.5% of principals from schools that dropped the program felt the presence of an FFA Chapter was a variable that was positive.

Table 2

Role of the FFA in Keeping A Secondary Agriculture Program

| Action | n | No Effect | | Positive Effect | | No Chapter | |
|---|---|---|---|---|---|---|---|
| | | n | % | n | % | n | % |
| Maintained | 16 | 4 | 25.0% | 8 | 50.0% | 4 | 25.0% |
| Dropped | 17 | 10 | 58.8% | 4 | 23.5% | 2 | 11.8% |
| Added | 5 | 0 | 0.0% | 3 | 60.0% | 2 | 40.0% |

The data in Table 3 showed there were interested students in programs where agriculture was added or maintained. However, 82% of principals from schools that dropped agriculture felt that student interest was low in their schools.

Table 3

Student Interest in the Secondary Agriculture Program

| Action | n | No Interest | | Interested | | No Answer | |
|---|---|---|---|---|---|---|---|
| | | n | % | n | % | n | % |
| Maintained | 16 | 2 | 12.5% | 12 | 75.0% | 2 | 12.5% |
| Dropped | 17 | 14 | 82.4% | 1 | 5.9% | 2 | 11.8% |
| Added | 5 | 0 | 0.0% | 5 | 100.0% | 0 | 0.0% |

The data in Table 4 showed over 62% of principals in programs that maintained their agriculture program reported having parents interested in the agriculture program. Principals in schools that dropped agriculture reported having only 35.3% of parents that were interested in the agriculture program. Principals in schools that had added the agriculture program did not give a clear answer in 60% of the cases to the question of parent interest in the agriculture program.

Table 4

Parent Interest in the Secondary Agriculture Program

| Action | n | No Interest | | Interested | | No Answer | |
|---|---|---|---|---|---|---|---|
| | | n | % | n | % | n | % |
| Maintained | 16 | 3 | 18.8% | 10 | 62.5% | 3 | 18.8% |
| Dropped | 17 | 8 | 47.1% | 6 | 35.3% | 3 | 17.6% |
| Added | 5 | 0 | 0.0% | 2 | 40.0% | 3 | 60.0% |

The data in Table 5 showed that agricultural employers and industry support influenced the decision to keep agriculture program in 75% of the cases for programs that maintained agriculture programs. Lower influence by the industry was exhibited in the opinions of principals that dropped or added programs.

Table 5

Did Employer or Agriculture Industry Support Influence Your Decision?

| Action | n | Yes | | No | | No Answer | |
|---|---|---|---|---|---|---|---|
| | | n | % | n | % | n | % |
| Maintained | 16 | 12 | 75.0% | 4 | 25.0% | 0 | 0.0% |
| Dropped | 17 | 5 | 29.4% | 4 | 23.5% | 7 | 41.2% |
| Added | 5 | 2 | 40.0% | 2 | 40.0% | 1 | 20.0% |

The agricultural advisory committee support was an important influence in both keeping and adding programs. The data in Table 6 showed 68.8% of principals from schools that had maintained programs and 100% of schools that added programs felt the agricultural advisory committee influenced their decision. Principals from schools that dropped agriculture felt little or no influence from the agricultural advisory committee in 64.7% of the cases.

Table 6

Did the Agricultural Advisory Committee Support Influence Your Decision?

| Action | n | Yes | | No | | No Answer | |
|---|---|---|---|---|---|---|---|
| | | n | % | n | % | n | % |
| Maintained | 16 | 11 | 68.8% | 4 | 25.0% | 1 | 6.3% |
| Dropped | 17 | 3 | 17.6% | 11 | 64.7% | 3 | 17.6% |
| Added | 5 | 4 | 80.0% | 1 | 20.0% | 0 | 0.0% |

The competence of the teacher was a major factor in whether a program was maintained or dropped. The data in Table 7 showed that 100% of the principals in schools that maintained programs felt they had a competent teacher. Only 29.4% of principals in schools that dropped agriculture felt they had a competent teacher.

Table 7

Did the School Have a Competent Teacher

| Action | n | Yes | | No | | No Answer | |
|---|---|---|---|---|---|---|---|
| | | n | % | n | % | n | % |
| Maintained | 16 | 16 | 100.0% | 0 | 0.0% | 0 | 0.0% |
| Dropped | 17 | 5 | 29.4% | 11 | 64.7% | 1 | 5.9% |

Teacher/administrative relationships seemed to vary widely between schools that kept programs and schools that dropped programs. The data in Table 8 showed teacher/administrative relationship were positive in 100% of the cases in school where the program was maintained. Schools that dropped the program felt the teacher/administrative relationship was positive in only 35.3% of the cases.

Table 8

What was the Teacher/Administrative Relationship?

| Action | n | Positive | | Negative | | No Answer | |
|---|---|---|---|---|---|---|---|
| | | n | % | n | % | n | % |
| Maintained | 16 | 16 | 100.0% | 0 | 0.0% | 0 | 0.0% |
| Dropped | 17 | 6 | 35.3% | 8 | 47.1% | 3 | 17.6% |

At the beginning of the interview principals were asked to tell what influenced them to make the decision they had made relative to the maintaining, dropping or adding agriculture in their school. The data in Table 9 showed principals in schools that maintained or added agriculture most often mentioned "the need for the program". "Enrollment declines", "declining student interest" and "problems associated with the agriculture teacher" were the factors most often mentioned by principals in schools that had dropped agriculture.

Table 9

What Influenced You to Take the Administrative Action You Did?

| Factors | Maintained n=16 | | Dropped n=17 | | Added n=5 | |
|---|---|---|---|---|---|---|
| | n | % | n | % | n | % |
| Enrollment | 3 | 18.8% | 15 | 88.2% | 0 | 0.0% |
| Student Interest | 3 | 18.8% | 9 | 52.9% | 0 | 0.0% |
| Teacher | 1 | 6.3% | 7 | 41.2% | 0 | 0.0% |
| Area Center | 0 | 0.0% | 2 | 11.8% | 0 | 0.0% |
| Cost | 0 | 0.0% | 1 | 5.9% | 0 | 0.0% |
| Need | 8 | 50.0% | 1 | 5.9% | 2 | 10.0% |
| Facility | 0 | 0.0% | 1 | 5.9% | 0 | 0.0% |
| Parents | 3 | 18.8% | 0 | 0.0% | 1 | 20.0% |
| Leadership | 1 | 6.3% | 0 | 0.0% | 0 | 0.0% |
| Funding | 1 | 6.3% | 0 | 0.0% | 0 | 0.0% |
| Tradition | 1 | 6.3% | 0 | 0.0% | 0 | 0.0% |
| Faculty | 0 | 0.0% | 0 | 0.0% | 1 | 20.0% |
| Retain Marginal Students | 0 | 0.0% | 0 | 0.0% | 1 | 20.0% |
| Part of Plan | 0 | 0.0% | 0 | 0.0% | 1 | 20.0% |

After going through the interview, the principals were asked to identify of all the areas under consideration, what most influenced them to take the administrative action they had taken. The data in Table 10 indicate principals, who maintained programs, most often mentioned "enrollment", "the teacher", "student interest" and "the need for the program". Principals in schools that had dropped the program responded most often that "enrollment" and "the teacher" were the reasons for dropping the program. The principals in schools that added the program most often cited the "need for the program" as the primary reason for adding the program.

Table 10

Of All the Areas Under Consideration What Most Influenced You to Take the Administrative Action You Did?

| Factors n | Maintained<br>n=16 | | Dropped<br>n=17 | | Added<br>n=5 | |
|---|---|---|---|---|---|---|
| | n | % | n | % | n | % |
| Enrollment | 7 | 43.8% | 11 | 64.7% | | 0.0% |
| Student Interest | 5 | 31.3% | 2 | 11.8% | | 0.0% |
| Teacher | 6 | 37.5% | 5 | 29.4% | | 0.0% |
| Outdated Program | | 0.0% | 1 | 5.9% | | 0.0% |
| Loss of Population | | 0.0% | 1 | 5.9% | | 0.0% |
| Need | 5 | 31.3% | 1 | 5.9% | 2 | 40.0% |
| Lack of Teacher | | 0.0% | 2 | 11.8% | | 0.0% |
| Parents | | 0.0% | | 0.0% | 1 | 20.0% |
| Leadership | 1 | 6.3% | | 0.0% | | 0.0% |
| Funding | 1 | 6.3% | | 0.0% | | 0.0% |
| FFA | 1 | 6.3% | | 0.0% | | 0.0% |
| Faculty | | 0.0% | | 0.0% | 1 | 20.0% |
| Retain Marginal Students | | 0.0% | | 0.0% | 1 | 20.0% |
| Part of Plan | | 0.0% | | 0.0% | 1 | 20.0% |
| Quality of Students | 2 | 12.5% | | 0.0% | | 0.0% |
| Job Placement | 1 | 6.3% | | 0.0% | | 0.0% |

## CONCLUSIONS

The analysis of the data led to the following conclusions:

1. The role of funding in decisions to keep, drop or add programs is not clear. Funding was not a significant factor in keeping existing program while it was a big factor in adding programs. Principals who dropped programs did not list funding as a significant factor in their decisions.
2. Student interest was high in schools where the program has been maintained or added and was low in schools that dropped the program.
3. Parent interest was evident in schools that maintained programs and not so evident in schools that had added or dropped programs.
4. Agriculture employer and industry support was a very big factor in keeping the agriculture program. This support was not so evident in programs that were dropped or added.
5. The agricultural advisory committee was a major factor in keeping and adding agriculture programs. In programs that were dropped either the advisory committee did not exist or was not effective in supporting the program.

6. Having a competent teacher was a major factor in whether a program was kept or maintained. The presence of a poor teacher was often given for dropping the program.
7. The teacher/administrative relationship also was an important factor in whether the program was kept or dropped. There was indications of teacher/administrative problems in many schools that dropped the agriculture program.
8. Most of the problems identified for dropping programs or advantages cited for keeping or adding programs were in areas that can be influenced by selection and training programs.

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# ASSESSMENT OF THE EFFECTIVENESS OF RECRUITMENT STRATEGIES DESIGNED TO ATTRACT HIGH-ABILITY NON-TRADITIONAL STUDENTS TO THE COLLEGE OF AGRICULTURE

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## INTRODUCTION

During the late 1970's and early 1980's, fewer individuals enrolled in agricultural and life sciences programs at U. S. colleges and universities (Coulter, 1982). The Ohio State University's College of Agriculture enrollment declined from a high of 3,174 undergraduate students in 1977 to 1,858 undergraduate students by the Autumn of 1986 (Staff, 1986). The decline in enrollment in the College of Agriculture parallels the drop in the number of high school graduates in the United Sates (Cowell, 1985). College enrollment changed from a seller's market of the early 70's to a buyer's market in the 80's (Discenza, 1985). As enrollments decline, there are accompanying budget reductions. More importantly, the reduced number of students who are prepared in the agricultural sciences will impact negatively on the nation's need for expertise in agriculture and natural resources.

The decline in college enrollment has been accompanied by a decline in the academic preparation of entering college students (O'Hearne, 1982). To compensate for the decline in enrollment and preparedness, colleges have devoted substantial attention, energy and resources to recruit more and better prepared students. Frequently they have paid major attention to a new audience viz. high ability students without an agricultural background. O'Hearne (1982), Lolli (1983), Erdmann (1983), Litten (1983), and Grossman (1985) reported ways for colleges to recruit more students. No evidence was presented for the effectiveness of recruitment of high-ability, non-traditional audiences. The Ohio State University's College of Agriculture has devoted considerable effort in an attempt to attract this new audience.

## PURPOSE OF THE STUDY

The primary purposes of this study were to determine the extent to which high-ability, non-traditional students were enrolling in the College of Agriculture and evaluate the effect various activities had on high-ability, non-traditional students' enrollment in agriculture.

### Objectives of the Study

1. Determine to what extent high-ability, non-traditional students enroll in agriculture.
2. Describe the characteristics of high-ability, non-traditional students who enrolled in agriculture.
3. Identify the recruitment activities high-ability, non-traditional students participated in prior to enrollment in the College of Agriculture.
4. Assess the effectiveness of various recruitment activities on high-ability, non-traditional students' decision to enroll in the College of Agriculture.

### Definition of Terms

**High-Ability Student** - A student with a composite ACT score of 26 or higher or a combined SAT score of 1150 or greater.

**Non-Traditional Student** - A student who did not enroll in a high school vocational agriculture program.

**Traditional Student** - A student who enrolled in a high school vocational agriculture program.

## PROCEDURES

### Research Design

Descriptive research techniques were used to collect data on the extent to which high-ability, non-traditional students enrolled in the College; characteristics of the high-ability, non-traditional students; recruitment activities high-ability, non-traditional students participated in; and level of influence which recruitment activities had on high-ability, non-traditional students' enrollment in the College of Agriculture. High school data were collected on all new first quarter freshmen entering the College from 1981-1986. The starting point of a major effort to attract high-ability, non-traditional students was established as 1984. This data provided information on new first quarter freshmen entering the College for three years prior to the intervention of the recruitment activities and three years after the intervention.

## Respondents for the Study

The target population for the initial section of the study was all new first quarter freshmen enrolled in the College of Agriculture between 1981 and 1986 (n=1020). A census of the target population was used in the study. The target population for the interviews was all high-ability, non-traditional students enrolled in the College between 1984 and 1986 (n=66). Eight of these students had withdrawn from the College and eight students had incorrect or missing address and/or telephone information recorded with the College of Agriculture which left an accessible population of fifty high-ability, non-traditional students who enrolled in the College between 1984 and 1986. Forty-one of the fifty high-ability, non-traditional students were interviewed. Telephone interviews were conducted with students who missed the personal interview appointment. Telephone interviews were treated as late respondents. Early respondents were compared to late respondents. No significant difference was found; therefore, the results were generalized to the population.

## Instrumentation

The principal sources of data for the study were high school transcripts, college admission applications, and self-reports collected by personal interviews. Data on high school achievement were collected using an instrument developed by Warmbrod (1981). Interview questions were developed to assess the effectiveness of recruitment activities on high-ability, non-traditional students' decision to enroll in the College of Agriculture and pursue an agricultural career.

The interview schedule was developed after completion of a detailed study of recruitment activities conducted by the College of Agriculture. Questions were designed to determine the number of students participating in various recruitment activities, the level of participation, and students' perceptions of the effect the activity had on their enrollment in the College of Agriculture. Interview questions were presented to a panel of experts in the College to establish their content validity. A pilot test was conducted with ten students from an undergraduate course which serves all students in the College. Participants in the pilot test were selected on ACT composite scores and participation in high school vocational agriculture to closely approximate the high-ability, non-traditional audience in the study. Final revisions were made and the final interview schedule was prepared.

## Data Analysis

All data were coded and analyzed using the Statistical Package for the Social Sciences (SPSSX). The analysis of the high school data was accomplished with descriptive statistics. Means were used as the measure of central tendency and standard deviations, frequencies, and ranges were employed to measure variability. The data for high-ability, non-traditional students were compared by year of entry at The Ohio State University using a one-way ANOVA. The comparisons were restricted to the study's target group, high-ability, non-traditional students. A Scheffe' post-hoc analysis was used to identify significantly different means at an alpha level of .05. The analysis of the interview data was accomplished with the use of descriptive statistics.

Though the first part of this study was a census, inferential statistics procedures were employed as new first quarter freshmen students entering the College of Agriculture were considered a sample at one point in time and, thus, findings of this study could be generalized to future groups of new first quarter freshmen students.

## RESULTS

### High-Ability, Non-Traditional Students Enrollment

The percent of high-ability, non-traditional students enrolled in the College of Agriculture increased from 8.61% in 1982 to 14.68% in 1986. The percent of high-ability, traditional students enrolled in the College decreased from 10.76 in 1982 to 7.69 in 1986. However, it should be noted that during this same time period The Ohio State University instituted a conditional/unconditional admissions policy that increased the number of college preparatory classes required for unconditional admission to the University.

The number of high school English, math, and science credits earned by high-ability, non-traditional students increased significantly. The increased number of high school English, math, and science credits were not accompanied by any significant change in the ACT English, math, and science scores of high-ability, non-traditional students. The number of high school English, math, and science credits also increased significantly for the remaining five categories of students in the study except for high school math credits for above average traditional students.

Analysis of social science credits, high school cumulative grade point average, composite ACT scores, total high school credits earned, and percentile class rank from 1981 to 1986 did not indicate a significant change for high-ability, non-traditional students enrolled in the College of Agriculture.

The average high school graduating class size for non-traditional students is generally larger than for traditional students. The percentage of females in the traditional categories of students increased from 1981 to 1986. The percentage of females in the College of Agriculture also increased over the same time period.

### Summary of Recruitment Activities

The College of Agriculture at The Ohio State University initiated a marketing program to meet this challenge through a grant to Dr. Kenneth W. Reisch and the College from the Office of Higher Education, USDA. The College organized a seminar to develop ways of attracting students into agricultural careers. The participants developed goals for a recruitment program and made recommendations for activities to reach the goals. The activities developed as a result of the 1983 Comprehensive Planning Seminar emphasized the relationship between agriculture and science careers and the personal atmosphere at the College of Agriculture (Reisch, 1983). Among these were: "Part of the Change," a videotape depicting agricultural careers as exciting careers in science, technology, business and information processing; the Science Expo, an agricultural science workshop for science students and teachers; The Science Workbook, a collection of ideas for high school science projects; Agricultural Merit Scholarships designed to attract high-ability students; and purchasing lists of high ability science students from national testing services. A number of activities were recommended to be used to inform prospective students of the relationship between agricultural and science careers. Additional activities included: Agricultural and Natural Resources Career Day, a day where prospective students can explore career opportunities in the College of Agriculture; Agriculture Day on Campus where students have the opportunity to experience college classroom life; Admissions Counselor Program provides an individual with an opportunity to make personal contacts with prospective students; Agriculture Ambassador's Program utilizes college students as recruiters for the College; personal contacts with prospective students; and faculty visits to schools were planned to promote the personal atmosphere in the College.

Traditional practices of recruitment such as booths at The Ohio State Fair, Farm Science Review, and the National FFA Convention were revised to emphasize the new goals of the College of Agriculture. The booths are staffed with faculty, administration, and students.

## Effectiveness of Recruitment Activities

Demographic data were collected during the interviews with high-ability, non-traditional students. Five percent of the high-ability, non-traditional students indicated an urban classification of their home while 71% classified their home area as rural. Forty-six percent of high-ability, non-traditional students' parents owned or operated a farm or an agribusiness. Seventy-one percent of the high-ability, non-traditional students have worked on a farm or an agribusiness. Seventeen percent of the high-ability, non-traditional students indicated they had no agricultural experience at the time of enrollment in the College of Agriculture.

The top eight recruitment activities in order of level of participation by high-ability, non-traditional students were personal letters, Merit Scholarship Program, personal calls, information booth at the Farm Science Review or The Ohio State Fair, Agriculture and Natural Resources Career Day, Agriculture Day on Campus, "Part of the Change" videotape, and faculty visits to high schools.

High-ability, non-traditional students were asked to judge the effect various recruitment activities had on their decision to attend The Ohio State University and to major in agriculture. The following activities were ranked on the basis of high-ability, non-traditional students' ratings of their effectiveness in influencing their decision: personal calls, Agriculture and Natural Resources Career Day, personal letters, information booths at the Farm Science Review and The Ohio State Fair, and the Merit Scholarship Program. If reinforcement of their career decision was included in the effectiveness of the activities, the ranking would be: Agriculture and Natural Resources Career Day, personal letters, Merit Scholarship Program, and information booths at the Farm Science Review and The Ohio State Fair.

Family was the most frequently mentioned first source of information about The Ohio State University and the College of Agriculture. Thirty-seven percent of high-ability, non-traditional students indicated family as their first source of information about the College. High school guidance counselors were second with 29% of high-ability, non-traditional students listing guidance counselor as their first source of information on the College.

## CONCLUSIONS

1. The number and percentage of high-ability, non-traditional students increased following the implementation of recruitment activities for high-ability, non-traditional students. However, this was probably influenced by the conditional/unconditional admissions policy instituted by The Ohio Sate University.

2. The number of high school credits in English, math, and science has increased significantly for high-ability, non-traditional students.

3. The increase in the number of high school credits in English, math, and science was not accompanied by a significant change in high-ability, non-traditional students' ACT English, math, and science scores.

4. Composite ACT scores and cumulative grade point averages remained steady over the period of time included in the study.

5. The personal letters and phone calls were very effective recruitment activities used by the College of Agriculture.

6. High-ability, non-traditional students were generally not from an urban area and had an agriculture/agribusiness background.

7. Family served as the primary source of information about the College of Agriculture and The Ohio State University for high-ability, non-traditional students who enrolled in the College of Agriculture between 1984 and 1986.

## TABLE 1

## PARTICIPATION BY HIGH-ABILITY, NON-TRADITIONAL STUDENTS IN RECRUITMENT ACTIVITIES CONDUCTED BY THE COLLEGE OF AGRICULTURE AT THE OHIO STATE UNIVERSITY

| Activity | Frequency | Percent |
|---|---|---|
| Personal letters from College faculty and administration | 37 | 90 |
| Familiar with Merit Scholarship Program | 35 | 85 |
| Personal Phone Calls from College Faculty and Administration | 18 | 44 |
| Visited Information Booth(s) at The Ohio State Fair and/or The Farm Science Review | 15 | 37 |
| Agriculture and Natural Resources Career Day | 15 | 36 |
| Agriculture Day on Campus | 12 | 29 |
| Viewed "Part of the Change" Videotape | 8 | 20 |
| Faculty Member Visits to High School | 8 | 20 |
| Science Workbooks Available in High School Science Class | 3 | 7 |
| Personal Visits from College Faculty and Administration | 3 | 7 |
| Science Expo | 1 | 2 |
| Visit from Ambassador Program Representative | 1 | 2 |
| Visit from Admissions Counselor | 0 | 0 |

## TABLE 2

## EFFECT OF RECRUITMENT ACTIVITIES CONDUCTED BY THE COLLEGE OF AGRICULTURE UPON HIGH-ABILITY NON-TRADITIONAL STUDENTS' DECISION TO ATTEND THE OHIO STATE UNIVERSITY AND MAJOR IN AGRICULTURE

| | No Influence | | Helped Decision | | Major Effect | | Decision Made Prior | | Rein-forced Decision | |
|---|---|---|---|---|---|---|---|---|---|---|
| Activity | No. | % | No. | % | No. | % | No. | % | No. | % |
| Career Day | 0 | 0 | 7 | 47 | 2 | 13 | 0 | 0 | 6 | 40 |
| Science Expo | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 100 |
| Agriculture Ambassador | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 100 |
| "Part of the Change" | 0 | 0 | 1 | 13 | 0 | 0 | 7 | 87 | 0 | 0 |
| Science Workbook | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 100 | 0 | 0 |
| Merit Scholarship | 6 | 18 | 10 | 29 | 3 | 9 | 8 | 23 | 7 | 21 |
| Personal Letters | 5 | 14 | 16 | 43 | 6 | 16 | 4 | 11 | 6 | 16 |
| Personal Calls | 3 | 17 | 7 | 39 | 5 | 28 | 2 | 11 | 1 | 5 |
| Personal Visits | 2 | 67 | 1 | 33 | 0 | 0 | 0 | 0 | 0 | 0 |
| Faculty Visit | 5 | 63 | 2 | 25 | 0 | 0 | 1 | 12 | 0 | 0 |
| Information Booth | 0 | 0 | 6 | 55 | 0 | 0 | 5 | 45 | 0 | 0 |

8. The high school guidance counselor was the second ranked primary source of information about the College of Agriculture for high-ability, non-traditional students who enrolled between 1984 and 1986.

9. Parents attend the Career Day and Agriculture Day on Campus activities with high-ability, non-traditional students.

10. High-ability, non-traditional students receive information needed to make career and college selection decisions.

11. High-ability, non-traditional students receive considerable personal correspondence in the form of personal letters from the College faculty and administration.

12. The College of Agriculture has not tapped the "true" high-ability, non-traditional audience with its recruitment activities. The definition used in the study may have been too broad. Even so, the "true" high-ability, non-traditional student, that is non-rural students without agricultural backgrounds would have been included in the population of this study. Such students did not appear in any appreciable numbers.

## DISCUSSION

While the percentage of high-ability, non-traditional students enrolled in the College of Agriculture has increased, the percentage of high-ability, traditional students has declined. Data indicated a decline from 10.76% in 1982 to 7.69% in 1986. Is this decline a reflection of increased graduation requirements and/or increased College entrance requirements forcing college-bound students not to enroll in high school vocational agriculture in order to provide time for more traditional academic subjects? Have the recruitment efforts focused on increasing the number of high-ability, non-traditional students at the expense of the high-ability, traditional students?

The interview schedule was not constructed to collect data on college majors of high-ability, non-traditional students. General information provided by high-ability, non-traditional students during the interviews indicated that a number of these students are in the College of Agriculture to prepare for a career in veterinary medicine. Are high-ability, non-traditional students majoring in only a few select majors? This issue needs to be explored.

Data showed the personal visits by faculty and administration officials were not effective in encouraging students to enroll in the College and pursue an agricultural major. Eight high-ability, non-traditional students indicated a faculty member visited their high school. Several students indicated the purpose of the visit was to present a Merit Scholarship at an awards assembly. At that point in a student's career, a college decision would have been made. The students' rating of the effectiveness of faculty visits could reflect the timing of the visit and not the ineffectiveness of the concept of faculty visits to high schools.

Parents attend the Agriculture Day on Campus and the Agriculture and Natural Resources Career Day with the high-ability, non-traditional students. Administators in the College of Agriculture should consider designing a portion of the activities with the parents in mind.

Students are apprehensive about the potential for an impersonal atmosphere at a large university. High-ability, non-traditional students were impressed with the personal attention they received from the College.

The College of Agriculture has developed recruitment activities such as the Science Expo, "Part of the Change" videotape, The Science Workbook and career resources with the non-traditional audience as the primary target. Other activities were used that had both traditional and non-traditional students as their audience. Can a recruitment activity effectively serve the needs of both traditional and non-traditional students? Have the activities designed to recruit a non-traditional audience reached the non-traditional students? Does the College have a specific strategy to reach truly non-traditional, high-ability students?

Are high-ability, non-traditional students really non-traditional? Evidence presented in this report indicates that high-ability, non-traditional students are more similar to the traditional group of students than they are different? Over 70% of the high-ability, non-traditional students indicated a rural background; 46% had parents who operated a farm and/or an agribusiness; and 71% had worked on a farm and/or an agribusiness. This information indicates a very traditional background for these so-called non-traditional students. Therefore a number of pertinent questions arise. Were proper definitions used to classify traditional and non-traditional students? Are the recruitment efforts really reaching the "real" non-traditional students? Further study needs to be undertaken to answer these questions.

The College of Agriculture needs to be more aware of the role of the guidance counselor in providing first information on the College of Agriculture. The College could develop activities to inform guidance counselors of the many opportunities available in agriculture.

## RECOMMENDATIONS

1. This study should be continued in a longitudinal fashion to determine if trends shown in the data remain constant over time.

2. A cohort study should be completed to determine the success of the high-ability, non-traditional students enrolled in the College. The college success of these students should be compared to the success rate of high-ability, traditional students.

3. The data produced as a result of this study should be used to evaluate current recruitment activities and revise the procedures to better reach the desired target audience.

4. Similar studies should be conducted at other institutions that have attempted to recruit high-ability, non-traditional students.

5. Colleges have a limited budget for student recruitment activities. Steps must be taken to insure that money used for recruitment is efficiently spent. Colleges should use cost benefit analysis to evaluate current recruitment activities. Research should be conducted on the development of better and more cost effective recruitment activities to attract the non-traditional audience.

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# PERCEPTIONS OF SELECTED POLICY MAKERS TOWARD AGRICULTURE

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## INTRODUCTION

The words "agriculture and farming" have traditionally been associated with mental images of a family farm; self-sufficient, self-reliant, a man and his family valiantly struggling against insurmountable odds. However, this image of agriculture is rapidly fading. The American farmer now depends on agribusiness for fertilizer, herbicide, seed, equipment, and finance. According to Hefferman et al., (1981) non-farm income helped to support 92 percent of the farm families in America.

New technology has restructured the agricultural industry. For example, new technologies have enabled farmers to physically and economically double the size of their farms. Agricultural engineers have designed planting, cultivating, and harvesting equipment which enables one individual to work hundreds of acres in a single day. As a result of these developments, much of the physical labor once associated with American agriculture and the number of Americans directly associated with farming has declined.

A review of related literature revealed that the American public is unaware of current changes in agriculture. As stated by Coon and Cantrell (1985):

> Today, the American public's image of agriculture is a kaleidoscope of leftover attitudes and images of what agriculture was during the 40's, 50's and early 60's. Agriculture is viewed as farming with no understanding of the impact of agriculture on other sectors of the economy (p. 22).

One way of improving the image and understanding of agriculture should be through the public and private educational system. However, if those who determine educational policy have misconceptions about agriculture, the future of agriculture may rest in unstable hands. Attitudes and perceptions of what agriculture was like during the 40s, 50s and 60s, are not sound bases from which to make decisions that affect the future of agriculture and agricultural education.

## PURPOSE AND OBJECTIVES

According to Fergus and Melamed (1976), perception is a process of extracting information. As one's perceptual set is broadened, becoming more complex and richly patterned with experience, an individual becomes more capable of extracting information from the environment. Theoretically, the larger the information base, the more able one is to make knowledgeable decisions. In order to ascertain the respondents' agricultural information bases, the respondents were asked to share their most accurate perception about statements relating to agriculture. Therefore, the central problem of this investigation was to determine the perceptions of Iowa teachers, state legislators, school board members, and school administrators toward agriculture. More specifically, this investigation was intended to:

1) Determine the perceptions which Iowa teachers, school administrators, state legislators, and school board presidents have of American agriculture.

2) Determine the demographic factors associated with the perceptions expressed by Iowa teachers, school administrators, state legislators, and school board presidents.

## PROCEDURES

Based on the population numbers within each of the respondent groups, the statistical sampling personnel at Iowa State University recommended that 458 teachers, 135 school administrators, 136 school board members and 65 state legislators be surveyed. A total of 29,806 teachers, 1,899 school administrators, 436 school board presidents, and 150 state legislators were identified in the population.

Simple random sampling was employed for the teachers and state legislators. School administrators and school board presidents from school districts with less than 3,000 students were simple random sampled. School administrators and school board presidents from school districts with a student population equal to or greater than 3,000 students were stratified random sampled.

Responses were received from 288 teachers, 94 school administrators, 82 school board members, and 30 state legislators consisting of a 64 percent response rate.

The author's review of literature revealed that Americans tend to view agriculture as: (1) a part of the American economy, (2) a way of life, (3) an industry, (4) a science, (5) a business, (6) becoming more mechanized, and (7) becoming more technical (Myster, 1943; Bell, 1970; Skadburg, 1971). Based on these views, approximately 53 perception statements toward agriculture and 17 associated demographic variables were identified for the initial draft of the instrument.

Content validity was established by a panel of six persons. Members of the validation committee included a school board member, a farmer, a vocational agriculture instructor, two professors of agricultural education, a rural sociologist, and a former school administrator. Based on their recommendations, the number of perception statements was reduced to 30 and the number of demographic variables increased to 31.

A reliability coefficient for the instrument was calculated using Cronbach's alpha. The overall reliability of the perception statements was .88.

According to Liu (1971), the number of units necessary in a measurement scale is dependent upon how well the respondent understands the subject in question and whether or not the respondents have heterogeneous backgrounds (Wolins, 1986). Traits which are well defined and individuals with similar backgrounds support the use of fewer units in the measurement scale. Since the respondents of this study were of different backgrounds and had varying levels of agricultural knowledge, a one to 99 scale was selected. According to Liu (1971), a one to 99 scale would improve the validity of the measure. The scores were then transformed to normal deviates. Analysis was then conducted on the transformed values after they were adjusted to eliminate decimal fractions and negative values. The transformed scale values ranged from 267 to 733. A mean score of 733 indicated a very high level of agreement with the statement while a mean score of 267 indicated a very low agreement with the statement by the respondent.

An individual has a natural tendency to respond in a set pattern to questions when using a larger scale (Wolins and Dickinson, 1973). This tendency is controlled by the use of this technique.

Data were collected through the use of a questionnaire. At the conclusion of data collection, telephone calls were randomly placed to five percent of the non-respondents to determine any non-response bias. T-test analysis between the mailed responses and the telephone responses indicated that non-response bias should not have biased the findings of the investigation. The responding sample of the investigation was considered representative of the population from which the original was drawn.

## RESULTS

School administrators and school board presidents from smaller school districts had a disproportionate number of school administrators and school board presidents per teacher when compared to larger Iowa School districts. Simple random sampling from these groups would have yielded a heavy response from the smaller school districts. However, a larger number of teachers taught in larger Iowa school districts. In order to reduce the probability that differences would have been identified without any knowledge of whether they occurred due to differences between large and small districts or between respondent groups, the data were weighted. The weighting of the data helped to control type I errors which could have resulted due to an inadvertant comparison of large and small school districts. As such, weighting the data facilitated comparisons between groups. Weight factors are reported in Table 1.

Insert Table 1 here.

Statistical analysis was conducted using SPSSx (Norusis, 1985, 1986). Means, standard deviations, analysis of variance, regression, and t-tests analysis and factor analysis were employed where appropriate. Scheffe's multiple range test was employed to determine any significant differences.

Factor analysis was conducted on the 30 perception statements using the principle components method and varimax rotation (Table 2). An eigen value of one appeared to be a logical point to ascertain the number of factors underlying the scaled items for the agricultural attitudes. Ten factors were extracted and described by the investigator as: (1) agricultural chemicals, (2) agriculture as a "big business," (3) new agricultural technology, (4) how mechanized agriculture is, (5) ag as a way of life, (6) agribusiness, (7) capital needed for agricultural endeavors, (8) how rapid ag is changing, (9) agricultural economic conditions, and (10) agricultural financial support. The perception statements and the factor loadings for each of these factors are summarized in Table 2.

Insert Table 2 here.

Cronbach's alpha reliability coefficients were calculated for the ten perception factors. All factor reliability coefficients were .72 or above. The overall reliability coefficient for these factors was .75. Based on the strength of the reliability coefficients, the factors extracted were considered adequate to measure the respondents' perception toward agriculture.

The one-way analysis of variance presented in Table 3 revealed that significant differences existed among the teacher, school administrator, school board president, and state legislator groups concerning their perceptions toward agriculture. The factor "agricultural chemical usage" was the only factor with no significant difference among group means. Scheffe's multiple range test was used to isolate significant differences. The state legislator group means were significantly different from teacher and school administrator group means in their perception of "new agricultural technology." The state legislator group mean was significantly different from teacher and school board president group means in their perception of "agriculture as a way of life" and the "capital requirements of agriculture." The state legislator group mean was significantly different from teacher, school administrator, and school board president group means in their perception of "agricultural mechanization" and "agribusiness." State legislators had higher mean scores for their perception of "agricultural economics" when compared to teacher, school administrator, and school board president group means. However, state legislator group means were lower than teacher, school board president, and school administrator group means for seven of the nine remaining factors.

---

Insert Table 3 here.

---

The factor, "agricultural chemical usage," had the highest total mean score among the teacher, school board president, school administrator, and state legislator groups. The mean for this factor was 612.2. Higher total mean scores were also observed for the respondents' perception of the "big business aspects of agriculture" and "agricultural mechanization."

The respondents' perception of "agriculture as a way of life" had the lowest mean score. The mean score for this factor was 490.2. Lower mean scores were also observed for the respondents concerning their perception of "how technical agriculture is today" and "agricultural economics."

Stepwise regression analysis of demographic variables revealed that 14 of the demographic variables accounted for 15 percent of the variance among the perception related factor means (Table 4). Each of these variables contributed statistically to the variance. The respondents' marital status, years of school administration experience, years of teaching experience, the population of the town where the respondent lived, the population of the town where the respondent lived, the population of the town where the respondent was raised, the respondents' father's occupation while the respondent was in high school, where the respondent was raised, and years of FFA membership accounted for the largest part of the explained variance.

## CONCLUSIONS AND/OR RECOMMENDATIONS

1. Respondents who were involved in agriculture tended to be more knowledgeable about agriculture. Agricultural education leadership

should try to involve the teachers, state legislators, school board presidents, and school administrators in agriculture.

2. State legislator mean scores tended to be lower when compared to the other respondent groups. State legislators must be made more aware of agricultural issues and emerging technologies.
3. Teachers with more teaching experience tended to have lower perception mean scores when compared to younger teacher respondent groups. Teachers with several years of teaching experience must be made more aware of agricultural issues and emerging technologies.
4. Older school administrators tended to have higher perception mean scores when when compared to younger teacher respondent groups. School administrators with fewer years of school administration experience must be made more aware of agricultural issues and emerging technologies.
5. Further research is needed to ascertain how one's perception of agriculture affects ones' attitude toward agriculture.

Enter Table 4 here.

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Table 1

Weighting Procedures for School Board Presidents and School Administrators

| | Number in the population | Number sampled | Number of valid responses | Weight factor |
|---|---|---|---|---|
| School administrator (> 3000)** | 565* | 32 | 19 | 29.7 |
| School administrators (< = 3000) | 1334 | 103 | 75 | 17.8 |
| School board presidents (> 3000) | 23 | 23 | 11 | 2.1 |
| School board presidents (< = 3000) | 413 | 113 | 71 | 5.8 |

*Note: Example calculation: 565 / 19 = 29.7.
**Note: "3000" reflects the number of students enrolled in the school district.

Table 2

Factor Analysis Results of the Perception Statements

| Factor item | Factor reliability coefficient | Loading |
|---|---|---|
| Factor one (agricultural chemicals) | .74 | |
| To what degree: are weeds chemically controlled? | | .869 |
| are agricultural insects chemically controlled | | .813 |
| are weeds controlled by herbicides? | | .723 |
| are fertilizers used to improve crop yields? | | .718 |
| Factor two (agriculture as a "big business) | .73 | |
| To what degree: is agribusiness "big business"? | | .838 |
| is farming "big business"? | | .831 |
| has agribusiness become dominated by large corporations? | | .391 |
| Factor three (new agricultural technology) | .72 | |
| To what degree: is farming becoming so technical that a college education is necessary to secure employment? | | .813 |
| is agribusiness becoming so technical that a college education is necessary to secure employment? | | .696 |
| is biotechnology used to control animal breeding? | | .467 |
| Factor four (how mechanized agriculture is) | .73 | |
| To what degree: is automation used in agriculture? | | .708 |
| are hydraulics used in agriculture? | | .699 |
| Factor five (ag as a way of life) | .74 | |
| To what degree: is the standard of living for agricultural workers below that of other persons in the United States? | | .777 |
| is an individual's social life lessened through agricultural employment? | | .664 |
| do farm families rely on non-farm income? | | .661 |

Table 2 (continued)

| Factor item | Factor reliability coefficient | Loading |
|---|---|---|
| **Factor six (agribusiness)** | .72 | |
| To what degree: is agribusiness diversified? | | .746 |
| does the farmer rely on the agribusiness sector of the agricultural industry? | | .658 |
| **Factor seven (capital needed for agricultural endeavors)** | .73 | |
| To what degree: has agribusiness become so capital intensive that only the wealthy can operate or own an agribusiness? | | .833 |
| has farming become so capital intensive that only the wealthy can operate or own a farm? | | .802 |
| **Factor eight (how rapid ag is changing)** | .72 | |
| To what degree: is the American farm a diversified business when compared to farms of the 1950s? | | .749 |
| is robotics used in the manufacture of agricultural equipment? | | .375 |
| **Factor nine (agricultural economic conditions)** | .76 | |
| To what degree: do the prices farmers receive for their commodities cover the cost of their expenses? | | -.718 |
| are world trade situations regulating the prices the farmer receives for his commodities? | | .665 |
| **Factor ten (agricultural financial support)** | .76 | |
| To what degree: is the federal budget subsidizing the farmer? | | .747 |
| has over extended agricultural credit contributed to the recent closing of several Iowa banks? | | .619 |

## Table 3

### Perceptions, Means, Standard Deviations, F-values, and F-probabilities by Perception Factor

| Factor | | Groups: School board presidents (N=434) (1) | Groups: Teacher (N=288) (2) | Groups: School administrator (N=1899) (3) | Groups: State legislator (N=434) (4) | Total (N=2651) | F-value | F-prob. |
|---|---|---|---|---|---|---|---|---|
| Agricultural chemical usage | M[a] | 608.97 | 611.06 | 613.20 | 610.21 | 612.24 | .7128 | .5443 |
| | SD[b] | 49.60 | 55.98 | 58.71 | 56.17 | 56.88 | | |
| | P[c] | 1 | 1 | 1 | 1 | 1 | | |
| Agriculture as a big business | | 570.82 | 566.74 | 579.01 | 558.36 | 576.10 | 6.6289** | .0002 |
| | | 55.07 | 60.53 | 55.54 | 70.01 | 56.38 | | |
| | | 3 | 3 | 2 | 2 | 2 | | |
| Agricultural technology | | 518.99 | 532.86 | 528.28 | 504.96 | 526.99 | 7.6522** | .0001 |
| | | 46.98 | 48.36 | 49.65 | 57.38 | 49.36 | (2<>4,3<>4) | |
| | | 9 | 8 | 8 | 9 | 8 | | |
| Agricultural mechanization | | 580.33 | 573.44 | 574.15 | 540.35 | 574.70 | 3.9299** | .0083 |
| | | 60.17 | 63.23 | 66.50 | 74.62 | 65.36 | (1<>4,2<>4,3<>4) | |
| | | 2 | 2 | 3 | 5 | 3 | | |
| Agriculture as a way of life | | 499.30 | 497.34 | 487.21 | 475.69 | 490.16 | 8.4366** | .0001 |
| | | 58.86 | 59.18 | 52.13 | 51.16 | 54.30 | (1<>4,2<>4) | |
| | | 10 | 10 | 10 | 10 | 10 | | |

[a] M = Mean
[b] SD = Standard deviation
[c] P = Position among means

Table 3 (continued)

| Factor | | School board presidents (N=434) (1) | Teacher (N=288) (2) | School administrator (N=1899) (3) | State legislator (N=434) (4) | Total (N=2651) | F-value | F-prob. |
|---|---|---|---|---|---|---|---|---|
| | | Groups | | | | | | |
| Agribusiness | M[a] | 563.98 | 551.47 | 561.00 | 527.87 | 560.08 | 6.4312** | .0002 |
| | SD[b] | 48.38 | 53.17 | 58.00 | 65.74 | 56.28 | (1<>4,2<>4,3<>4) | |
| | P[c] | 4 | 4 | 5 | 6 | 4 | | |
| Capital needed for agriculture | | 538.41 | 539.46 | 534.17 | 512.35 | 535.19 | 2.6120* | .0498 |
| | | 66.01 | 58.23 | 57.68 | 50.38 | 59.16 | (1<>4,2<>4) | |
| | | 6 | 6 | 7 | 8 | 7 | | |
| Rapid change in agriculture | | 529.99 | 533.72 | 540.12 | 523.27 | 537.57 | 6.1819* | .0004 |
| | | 44.66 | 55.08 | 51.08 | 66.42 | 50.89 | | |
| | | 7 | 7 | 6 | 7 | 6 | | |
| Agricultural economics | | 525.96 | 514.00 | 527.78 | 543.07 | 526.15 | 9.5645 | .0001 |
| | | 48.14 | 43.84 | 43.50 | 33.74 | 44.45 | (2<>4) | |
| | | 8 | 9 | 9 | 9 | 9 | | |
| Agricultural subsidizies | | 546.44 | 542.66 | 562.75 | 556.75 | 557.83 | 16.9268** | .0001 |
| | | 48.09 | 52.61 | 59.93 | 78.99 | 58.15 | | |
| | | 5 | 5 | 4 | 3 | 5 | | |

[a]M = Mean
[b]SD = Standard deviation
[c]P = Position among means

## Table 4

Stepwise Regression Analysis of the Composite Mean Score for the Perception Related Factors (y) of the Respondent Toward Agriculture on the Demographic Variables (x)
(F-value to enter = 3.84, F-value to remove = 2.71)

| Step | Activity | Variable | Multiple-R | F-value |
|---|---|---|---|---|
| 1 | Enter | Respondents' marital status | .18380 | 92.65 |
| 2 | Enter | Years administration experience | .23260 | 75.76 |
| 3 | Enter | Years teaching experience | .25701 | 62.43 |
| 4 | Enter | Population of town where living | .27602 | 54.57 |
| 5 | Enter | Population of town where raised | .28974 | 48.50 |
| 6 | Enter | Father's occupation during high school | .30073 | 43.83 |
| 7 | Enter | Where respondent was raised | .33970 | 49.27 |
| 8 | Enter | Years in FFA | .35209 | 46.75 |
| 9 | Enter | Years agricultural adult education | .36634 | 45.50 |
| 10 | Enter | Sex of respondent | .37031 | 41.97 |
| 11 | Enter | Respondent's job title | .37427 | 39.09 |
| 12 | Enter | Years of vocational education | .37697 | 36.43 |
| 13 | Enter | Semesters of college agriculture | .37909 | 34.06 |
| 14 | Enter | Years of formal education | .38119 | 32.02 |

# AN ANALYSIS OF THE OPINIONS OF SECONDARY SCHOOL PRINCIPALS OF SCHOOLS THAT HAVE EITHER DROPPED, ADDED, OR MAINTAINED SECONDARY AGRICULTURE PROGRAMS IN MICHIGAN FROM 1982 TO 1986

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REACTION PAPER BY W. WADE MILLER
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## INTRODUCTION

This piece of research should prove interesting to university faculty and state department of education staff. Everyone has an opinion about why some schools drop programs, while schools maintain or add programs. This research sought to quantify and qualify the opinions of a very important and influential group of people -- high school principals. The purpose of this research was to determine how principals felt about selected aspects of the secondary agriculture program. The principals were selected on the basis of being involved in a recent decision to add, drop, or maintain an agricultural program in the schools they served.

## DISCUSSION

Proper research procedures appear to have been followed. The survey instrument was developed by the author and content validity was established by a panel of University and State Department personnel. One commendable aspect of this study is that it was conducted using a telephone interview using a former principal. The data were summarized by categorizing the responses of the principals to the questions on the interview schedule. Frequencies and percentages were used to analyze the data.

Eight specific conclusions were derived from the data. It is these conclusions which prove most interesting. The findings may surprise some people. I encourage readers to examine the conclusions in light of what they presently believe concerning schools decisions to add, maintain, or delete agriculture programs at the secondary level. It appears that funding is not a significant factor, and emphasizes that teacher variables were very important.

I would challenge the researcher to conduct further study in this area. Since the school principal is not the sole person who makes the decisions concerning adding, maintaining, or deleting programs; it would be interesting to garner the opinions of school board members and other administrators.

# ASSESSMENT OF THE EFFECTIVENESS OF RECRUITMENT STRATEGIES DESIGNED TO ATTRACT HIGH-ABILITY NON-TRADITIONAL STUDENTS TO THE COLLEGE OF AGRICULTURE

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## INTRODUCTION

This study will be of special interest to many faculty members and administrators in colleges and schools of agriculture. Everyone in agricultural education is well aware of the declines in student enrollment in agricultural and life sciences across the nation. Many colleges and universities have responded to this decline in enrollment by increasing their recruitment efforts. This study sought to determine the extent to which high-ability, non-traditional students were enrolling in the College of Agriculture at Ohio State University and to evaluate the effect of various recruitment activities on these students.

## DISCUSSION

It is evident that the researchers went about solving this research problem in an orderly manner. Proper research procedures were strictly adhered to. A total of 50 students met the requirements for the sample group and were available to the researchers. Student records were used to collect some of the data and an interview schedule was developed by one of the researchers. Personal interviews and telephone interviews were conducted with the group. Descriptive statistics were used to analyze the data and inferential statistics were used on a selective basis where appropriate.

It is the results and the 12 conclusions of this study which prove most interesting. The results should help Ohio State to make better use of the finite resources they have for recruitment; moreover, there are implications for other colleges and universities. For example, the researchers learned that personal letters and phone calls were very important recruitment activities. Like many studies, the results of this study leads the researchers to ask many new questions. In their discussion of the findings, the researchers raise several questions which need additional study. It would be to our benefit if the researchers decide to pursue the answers to those questions and report the findings.

# PERCEPTIONS OF SELECTED POLICY MAKERS TOWARD AGRICULTURE

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## INTRODUCTION

What kinds of pictures does the words "agriculture" or "farming" conjure in peoples minds? How accurate are those pictures? How up-to-date are those pictures? The purpose of this study was to determine the perceptions which teachers, school administrators, state legislators, and school board presidents have of American agriculture.

## DISCUSSION

To accomplish this purpose, the researchers employed a descriptive survey technique. A questionnaire was developed from a review of literature and a panel was used to check content validity. A reliability coefficient of .88 was reported but it was unclear as to when this coefficient was established. Was it calculated before the data was collected or as a part of the data analysis? Non-response bias was controlled by the researchers conducting a follow-up of five percent of the non-respondents. The methods for analysis seem to be appropriate for the data collected.

The researchers do an admirable job in presenting the findings. The tables are clear and the narrative supports the tables. From the findings, a total of five conclusions and/or recommendations are offered. The most informative part of the study is here. I would like to have seen more discussion centering around the conclusions and recommendations. It is interesting to note that the group who knew the least about agriculture was state legislators. This finding and its implications should be examined further. Another interesting finding is that younger school administrators know less about agriculture than their more experienced colleagues. This finding also needs further study.

In summary, this study raises some interesting points. As agricultural education prepares to enter the next decade, we must be aware that many influential people do not necessarily have an accurate perception of the industry of agriculture.

# PRIORITIES OF BEGINNING TEACHERS OF AGRICULTURE IN MISSOURI

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## INTRODUCTION

The ability to set appropriate priorities for the use of time for job and personal activities has been a matter of study for the role of the teacher of agriculture. Related studies have also been conducted which revealed that the use of time was related to why teachers leave the profession. Hicks (1937), Coggin (1953), Lockwood (1976), and Goode and Stewart (1981) cited the use of time by teachers to be a major professional concern. Lockwood and Goode and Stewart used similar instruments to ascertain priorities for the use of time by teachers of agriculture. The instruments included items related to personal and community as well as professional activities of teachers. The situation has evidently not changed since Lockwood (1976, p. 249) stated:

> We seem to make more demands on instructors' time every year. In Iowa during the last 18 years, we have added at least eight new time-consuming activities in our vocational agriculture departments. . .A beginning teacher is faced with the very frustrating task of deciding what he will be forced to leave undone.

Recent studies designed to follow-up teachers who left the profession have also found that time was a concern. Moore and Camp (1979) found that long hours was the top listed reason given by teachers that left teaching. Knight (1978) reported that time related concerns ranked second as the reason teachers left teaching in Ohio. And, in a related study, Birkenholz (1986) reported that teachers spend a greater number of hours per week on the job than those who were certified but never taught or those that had quit teaching.

Goode and Stewart (1981) asked 217 teachers to rank 35 activities which included job responsibilities, civic, church, and personal types of items. They concluded that teachers do have priorities for their activities and that activities related to teaching secondary students were perceived to be most important. In addition, activities related to home and family life were perceived to be more important than program maintenance, community, and adult teaching activities.

However, limited data were available to describe how beginning teachers of agriculture prioritize the use of time. Therefore, determination of the time use priorities of beginning agriculture teachers provided the focus for this investigation.

## PROBLEM STATEMENT

Setting priorities for the use of time is a problem for professionals in many areas, including teachers of agriculture. Prior studies have examined priorities of experienced teachers of agriculture and reasons that teachers leave the field. However, little data were available that related specifically to the priorities of new teachers. Therefore, the focal point for this study was to provide information concerning the priorities of beginning teachers of agriculture.

## OBJECTIVES OF THE STUDY

This study was designed to replicate research reported by Goode and Stewart (1981) using Missouri beginning secondary agriculture teachers as the target population. The primary purpose of the investigation was to determine the priorities which Missouri first year agriculture teachers place on selected civic, self, family, and teaching-related activities. A secondary purpose of the research was to determine if differences existed between the priorities of beginning Missouri agriculture teachers in 1986 and the priorities of Missouri agriculture teachers in 1979 as established by Goode and Stewart (1981). The following null hypotheses were tested at the .05 alpha level:

$Ho^1$: There are no significant differences among the priority ratings given to the activities by the 1986 beginning agriculture teachers.

$Ho^2$: There is not a significant relationship between the rankings of the priorities of the 1986 beginning agriculture teachers and the rankings of the teachers surveyed in 1979.

## METHODS AND TECHNIQUES

The population for the study included all Missouri secondary agriculture instructors who began teaching in the fall of 1986 and 1987 (N = 35). The entire population was surveyed and provided data. Data for the comparison group was obtained from the 1979 study of Missouri secondary agriculture teachers reported by Goode and Stewart (1981). The population for the comparison group included all Missouri secondary agriculture teachers employed during the fall of 1979 (N = 342). Of the total population, 242 (71%) were surveyed and 90% (N = 217) provided usable responses.

Data were collected using an instrument designed by Lockwood (1976) and modified by Goode and Stewart (1981). The instrument used a 0 to 4 (0 = least important; 4 = most important) Likert-type scale to determine the importance which the agriculture teachers placed on 35 civic, church, family, and self- related activities. The instrument was designed so that the sum of each respondents ratings could not exceed 70. This provision simulated reality by forcing teachers to choose among competing activities.

Goode and Stewart (1981) pilot tested the revised instrument and reported a test-retest reliability coefficient of .94. Therefore, the instrument was deemed reliable for use in the present study.

The revised instrument was administered to first year teachers at a beginning teacher workshop held during the fall of 1986. All beginning teachers (N = 35) completed the instrument and 34 (97%) left usable responses.

Data were analyzed using procedures available in the Statistics Analysis System (SAS Institute, 1985) computer program. An analysis of variance (ANOVA) procedure followed by the Duncan's multiple range test was utilized to test the first hypothesis. The apriori alpha level was set at .05. Inferential statistics were utilized to test the first hypothesis based on the assumption that the respondents constituted a sample representative of past, present and, to a limited degree, future generations of Missouri beginning agriculture teachers. The second hypothesis was tested by arranging both sets of data into ranks and computing a Spearman Rho correlation coefficient. The resulting correlation coefficient was tested for significance (Ferguson, 1981) at the .05 level.

## FINDINGS AND CONCLUSIONS

The analysis of variance (ANOVA) procedure, utilized to test hypothesis 1, yielded an F value of 18.26 (df = 34, 1155; p = .0001). On a 0 to 4 scale, the means ranged from 3.5 for teaching local day classes to 0.7 for working with the local Young Farmer Association. Table 1 lists the mean for each of the 35 activities and identifies significant differences among the means as established by the Duncan multiple range test. Means which have different letters beside them were significantly different. The first hypothesis was rejected; beginning secondary agriculture teachers in Missouri do have priorities for the 35 activities studied.

Teaching local day classes (3.5) was rated significantly higher than all other activities except FFA activities on the local level (3.17). SOEP production and placement programs (2.88) were rated third while SOEP records (2.82) were rated fourth. Three activities received mean ratings of less than 1.00. Visits to Adult/Young Farmer class member (0.97), professional organizations outside of vocational education (0.88), and working

Table 1

Means, rankings, and significant differences among activities as rated by beginning teachers.

| Rank | Activity | Mean | Sign. diff.* |
|---|---|---|---|
| 1 | Teaching local day classes | 3.50 | a |
| 2 | FFA activities on local level | 3.18 | ab |
| 3 | SOEP (production and placement programs) | 2.88 | bc |
| 4 | SOEP records | 2.82 | bcd |
| 5 | Family life on weekends | 2.73 | cde |
| 6 | FFA activities past local level | 2.65 | cde |
| 7 | Vo. ag. contests | 2.56 | cdef |
| 8T | Daily family life | 2.53 | cdefg |
| 8T | Paper work required locally | 2.53 | cdefg |
| 8T | Teaching calendars, course of study, etc. | 2.53 | cdefg |
| 11 | Classes, workshops, prof. development | 2.44 | cdefgh |
| 12 | Exhibiting projects | 2.38 | cdefgh |
| 13 | Paperwork required above local level | 2.35 | cdefgh |
| 14T | Keeping current in agriculture | 2.32 | defgh |
| 14T | Visits to potential vo. ag. students | 2.32 | defgh |
| 16 | Neatness and organization | 2.26 | efgh |
| 17 | Effective PR program | 2.23 | efgh |
| 18 | Personal leisure time | 2.03 | fghi |
| 19 | Participation in vo. ed. organizations | 2.00 | ghij |
| 20 | Local vo. ag. advisory council | 1.94 | hijk |
| 21T | Plan and conduct field trips | 1.70 | ijkl |
| 21T | Visiting with others | 1.70 | ijkl |
| 23 | Support all school activities | 1.59 | ijklm |
| 24 | Participation in church activities | 1.53 | ijklm |
| 25 | Having a nice home | 1.50 | jklmn |
| 26 | Coordination with other agencies | 1.47 | klmn |
| 27 | Second source of income | 1.38 | lmno |
| 28 | Adult and young farmer classes | 1.32 | lmno |
| 29 | Local school duties | 1.26 | lmnop |
| 30T | Participation in civic organizations | 1.24 | lmnop |
| 30T | Local FFA Alumni Association | 1.24 | lmnop |
| 32 | Willingly help anyone at any time | 1.12 | mnop |
| 33 | Visits to adult/YF class members | .97 | nop |
| 34 | Prof. organizations outside vo. ed. | .88 | op |
| 35 | The Young Farmer Association | .76 | p |

N = 34 teachers

*Means followed by different letters are significantly different ($p < .05$) by the Duncan Multiple Range Test.

with the Young Farmer Association (0.76) were the three lowest rated activities.

The rankings of the activities of the 1986 beginning Missouri agriculture teachers were compared with the rankings of the agriculture teachers surveyed in 1979 (Goode and Stewart, 1981). The calculated Spearman Rho correlation coefficient was .91 which was significant at the .05 level (df = 33). Therefore, the second hypothesis of no significant relationship between rankings of the priorities of the two groups of teachers was rejected.

Both the beginning teachers and the teachers surveyed in 1979 (Goode and Stewart, 1981) assigned the highest priority to teaching local day classes followed in order by FFA activities on the local level, SOEP production and placement programs, and SOEP records. However, the 1986 beginning teachers placed less importance on Adult/Young Farmer activities than did the teachers surveyed in 1979.

Based on the findings of this study, the following conclusions were formulated.

The mean rating of each activity was significantly different from at least 17 of the 34 remaining activities; therefore, it was concluded that Missouri beginning agriculture teachers have priorities for their activities. It was further noted that the beginning teachers placed the greatest importance on the three traditional components of the secondary school agriculture program: classroom instruction, the FFA, and the supervised occupational experience program.

Based on the high positive (.91) correlation between the beginning teachers and the teachers surveyed in 1979, it was concluded that teachers tend to establish the same priorities regardless of the amount of teaching experience. This was especially true for the activities associated with classroom instruction, the FFA, and the supervised occupational experience programs.

## IMPLICATIONS

The priorities of beginning teachers reflect the traditional secondary program emphasis of classroom teaching, FFA, and supervised occupational experience. However, the data suggest two differences between the groups. Beginning teachers rated work with advisory councils and the recruitment of student higher than did the other teachers. Likely, changes in enrollment during the time frame of data collection could explain this difference. In addition, beginning teachers rated those activities related to adult education much lower than the other teachers. This difference should receive attention in the preparation of teachers. Evidently greater efforts are needed to guide beginning teachers in working with the adult share of the program. Overall,

Table 2

Means and rankings among activities as rated by teachers in 1979 and 1986.

| Rank |  |  | Mean |  |
|---|---|---|---|---|
| 1986 | 1979 | Activity | 1986 | 1979 |
| 1 | 1 | Teaching local day classes | 3.50 | 3.70 |
| 2 | 2 | FFA activities on local level | 3.18 | 3.17 |
| 3 | 3 | SOEP (production and placement programs) | 2.88 | 3.13 |
| 4 | 4 | SOEP records | 2.82 | 2.83 |
| 5 | 9 | Family life on weekends | 2.73 | 2.47 |
| 6 | 11 | FFA activities past local level | 2.65 | 2.41 |
| 7 | 7T | Vo. ag. contests | 2.56 | 2.48 |
| 8T | 6 | Daily family life | 2.53 | 2.52 |
| 8T | 13 | Paper work required locally | 2.53 | 2.31 |
| 8T | 5 | Teaching calendars, course of study, etc. | 2.53 | 2.55 |
| 11 | 7T | Classes, workshops, prof. development | 2.44 | 2.48 |
| 12 | 16 | Exhibiting projects | 2.38 | 2.07 |
| 13 | 17 | Paperwork required above local level | 2.35 | 2.06 |
| 14T | 12 | Keeping current in agriculture | 2.32 | 2.34 |
| 14T | 24T | Visits to potential vo. ag. students | 2.32 | 1.77 |
| 16 | 14 | Neatness and organization | 2.26 | 2.27 |
| 17 | 10 | Effective PR program | 2.23 | 2.46 |
| 18 | 15 | Personal leisure time | 2.03 | 2.08 |
| 19 | 19 | Participation in vo. ed. organizations | 2.00 | 1.94 |
| 20 | 26 | Local vo. ag. advisory council | 1.94 | 1.66 |
| 21T | 24T | Plan and conduct field trips | 1.70 | 1.77 |
| 21T | 22T | Visiting with others | 1.70 | 1.81 |
| 23 | 30 | Support all school activities | 1.59 | 1.23 |
| 24 | 22T | Participation in church activities | 1.53 | 1.81 |
| 25 | 18 | Having a nice home | 1.50 | 1.97 |
| 26 | 27 | Coordination with other agencies | 1.47 | 1.47 |
| 27 | 20 | Second source of income | 1.38 | 1.90 |
| 28 | 21 | Adult and young farmer classes | 1.32 | 1.87 |
| 29 | 32 | Local school duties | 1.26 | 1.05 |
| 30T | 31 | Participation in civic organizations | 1.24 | 1.11 |
| 30T | 35 | Local FFA Alumni Association | 1.24 | .72 |
| 32 | 34 | Willingly help anyone at any time | 1.12 | .73 |
| 33 | 29 | Visits to adult/YF class members | .97 | 1.46 |
| 34 | 33 | Prof. organizations outside vo. ed. | .88 | .93 |
| 35 | 28 | The Young Farmer Association | .76 | 1.47 |

N = 34 teachers in 1986 and 217 teachers in 1979.

it appears that beginning teachers perceive the challenge of their job in much the same way as experienced teachers. The challenge for those in leadership positions is to guide the young teacher to maintain appropriate priorities as they learn to manage and live with their job.

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# PERCEPTION OF SECONDARY TEACHERS CONCERNING PUBLIC SCHOOLS IN RURAL COMMUNITIES

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## INTRODUCTION

Challenges facing the delivery of rural education in the United States have grown in recent years. Rural student numbers have declined due to a general decline in the number of school age children in the United States as well as a decline in rural populations. Economic resources have become more scarce because of the worsening farm economy and the general decline in revenues in many states. The problem is particularly acute at the secondary education level where there are increasing demands by public and state agencies for expanded curricular options. These concerns, and others, have led to rural schools being characterized as being small in size, sometimes economically depressed, having difficulty in offering broad and varied curricula and being unable to maintain balanced staffs.

Limited studies have been done analyzing the problems facing rural schools in recent years. One crucial aspect of rural education, that of rural teachers and their role in the school and community, has remained conspicuous by its absence in research studies. There is little definitive data on rural teachers despite the fact that teachers are the key to educational excellence in any community or cultural context (Sher & Rosenfeld, 1977).

Rural schools function in an environment which is quite different from urban and suburban settings. Community and cultural concerns often have greater impact upon rural schools and teachers because of the microcosmic setting in which they occur. Consequently, a study of perceptions regarding the role of teachers and the school in rural communities was considered justifiable.

The following questions were developed in order to address school and community concerns which exist in rural settings: How do teachers perceive their role in the rural community? What factors help or hinder the teachers in fulfilling their roles? How do the agricultural community and vocational agriculture program help or hinder the total program of the school? What are the expectations of the community for its teachers?

## OBJECTIVES

Perceptions of rural secondary teachers about the role of the public school in rural communities was portrayed by fulfilling the following specific objectives: (1) Describe the support of the agricultural community for the vocational agriculture program and the school, (2) Describe the expected role of rural school secondary teachers,

(3) Identify factors in rural communities that were related to the success of the educational program, (4) Identify the amount of influence teachers exerted over the curriculum, and (5) Identify expectations of teachers in addition to classroom responsibilities.

## RELATED LITERATURE

Few research studies have examined the interaction between rural teachers and the school and community. In a study of rural Utah teachers ( Parsons & Hoppe, 1975), it was reported that over one-half of the rural teachers surveyed felt they were more closely observed by community members than their urban counterparts. While few rural teachers mentioned poor salary as a disadvantage, most teachers and school administrators felt that teachers actually needed to work another job part-time to make a satisfactory living. Other difficulties in teaching in rural areas that were mentioned included a lack of equipment, facilities and materials, limited curriculums, "community cliques, gossip and small town talk," conservative attitudes, and a lack of conveniences. Principals of smaller schools reported significantly lower levels of satisfaction than did principals of large schools (Sparkes & McIntire, 1987).

Conversely, numerous advantages to teaching in rural areas have been reported. Muse, et. al. (1975) found that rural communities were largely supportive of teachers in their schools. Most teachers were socially accepted in the rural communities studied. Students and parents in these areas had a higher regard for the teaching profession than did the educators themselves. Teachers indicated that other major advantages to working in rural settings included parental cooperation, a friendly population, good physical and family environments, and a good rapport between teachers and students.

Dunne (1983) found that rural people are proud of their schools and typically refer to a family feeling, attention to individuals, and the commitment of the community resources and people. Schools in rural communities do deve[illegible] a culture, a way of doing things (Carlson & Matthes, 1987). Persons who ignore these phenomena are destined to experience a significant struggle if they attempt to import changes which run counter to the established "way". On the other hand, people can impact the school if their ideas reinforce or support the established culture. Barker (1985) claimed that many problems such as finances, shortage of teachers, changing social values, and special interest groups were magnified in small high schools, yet, due to smaller size, they offered the best opportunities to create a school climate conducive to the best teaching and learning.

## METHODS

The data used in this study were collected in a staff study entitled The Nature of Public School Instruction in Rural Ohio. The staff study was conducted by the Department of Agricultural Education at The Ohio State University. The methodology used and reported in this study was limited to that used in completing the case study.

Qualitative research methods were used in this descriptive study. Personal interviews were conducted with faculty members of four rural Ohio high schools during 1985. For the purpose of the study a rural public high school in Ohio was one that met the following criteria: (1) located in a county outside a Standard Metropolitan Statistical Area, (2) located in a county with a total population of less than 40,000 people, (3) offered vocational agriculture as a high school course, and (4) had a high school enrollment of 500 or fewer students (average class size under 125). Fifty-two public secondary schools in the state of Ohio were found to meet these requirements. These schools were geographically stratified into four groups to account for the social and economic differences associated with location. One school was randomly selected from each of the four groups. One teacher was randomly selected from those who were not teaching during each school period. This procedure resulted in six interviews being conducted in each school.

An interview schedule was developed. It was checked for content validity by a panel of former teachers. It was then field tested with practicing teachers for clarity and the nature of responses.

Each interview lasted most of the free period of the teacher. Probing questions were used to clarify responses or to obtain the reasons behind responses. Content analysis techniques were used to summarize the results.

## RESULTS

Faculty members who were interviewed taught a broad range of subjects. Most had been teaching for several years and were residents of the communities where they taught. They were from faculties that ranged in size from 18 to 24 full-time teachers. The average number of faculty members in each school which was studied was 20.

Considering the criteria utilized to select the schools included in the sample, it was expected that each of the communities would have some agricultural influence. Those teachers who were interviewed were asked to report how important agriculture was in the school district. The majority considered agriculture to be "very important." Principle reasons cited were the provision of jobs for the community, agricultural background of most students and area residents. Minor mention was also given to the fact that agriculture had an effect on the school curriculum.

Approximately 40 percent of the faculty members responding perceived agriculture to be of "some importance", citing reasons similar to those just mentioned. Only ten percent of the teachers studied described agriculture in the district as being of minor importance. Justifications for these responses included the fact that the agricultural economy was depressed and therefore agriculture made a smaller financial contribution to the tax base, and there was a relatively small number of full-time farmers in the communities.

Considering a more specific agricultural concern, faculty members were asked to report how much support the vocational agriculture program received from the community. All respondents in all schools perceived that the vocational agriculture program was supported by the community. The degree of support varied by school, however. Those groups in the communities consistently credited with providing major support for the vocational agriculture programs were Young Farmers, FFA Alumni groups, and, to a lesser degree, area agribusinesses. Types of support which was provided included service on advisory councils, sponsorship of FFA awards, substitute teaching, and service as resource persons for the vocational agriculture programs.

While not directly addressed, comments made by some of the faculty members who were interviewed appeared to link community support with the community's perception of the job done by the vocational agriculture teacher. No mention was made of the agriculture teachers in cases where support for the vocational agriculture program was not as strong.

Those interviewed next indicated how they felt as a teacher in the community. The vast majority reported being comfortable with teaching in a rural setting. The principle advantages listed included fewer discipline problems, fewer of the problems found in urban schools, slower pace, lower cost of living, more assistance from the community, people know each other, students know and practice the work ethic, more freedom in teaching, faculty members are respected in the community, and little or no politics in the school system.

Conversely, teachers reported problems they perceived with the community concerning education. The principle concerns listed by the educators were narrow-mindedness among community members, parents not having enough knowledge and experience to properly help students make sound decisions, and parents failure to encourage students to be goal oriented.

Responses varied by community regarding support for education in general and for teachers in particular. Some teachers reported a great deal of community support for themselves and the school while others perceived their community as having a low priority for education and a poor image of teachers. The majority of teachers who were interviewed did report positive community attitudes and support.

Teachers were next asked to describe what factors in the school or community helped them to be a good teacher. Community characteristics that were helpful to the respondents were: community support for the school and school activities, community commitment to education, parental involvement in the school, having the opportunity to know nearly all students, parents and other community members, and, to various degrees, providing resources that were helpful for teaching.

The principle factor in the schools which contributed to better teaching was support by and cooperation between faculty members and administrators. Other desirable characteristics of the schools and students were; smaller class sizes, better disciplined students, student respect for teachers, desirable student attitudes and motivation and close relationships between teachers and students.

Teachers outlined those factors in the school or community that hindered them as teachers. The principle complaint that teachers had about their rural communities was lack of privacy. One teacher well summarized similar comments by stating "everybody knows everybodies' business." Other hinderances in the communities included conservative attitudes of community members, broken homes, lack of resources for field trips, lack of minorities resulting in students being culturally deprived, and parents going directly to administrators with problems that the teacher should have had the opportunity to handle.

The factors in the school which most frequently hindered instruction were a lack of resources including funding, equipment, teaching materials and facilities. Other hinderances listed were outdated teaching materials, frequent class interruptions, difficultiesin scheduling classes and the fact that students had to be bused long distances to get to school.

After considering school and community factors affecting rural teachers, the respondents were asked to describe their role in curriculum selection and development. The respondents were nearly equally divided concerning whether or not they contributed significantly to curriculum development. Faculty members from two of the schools in the study felt that they played a major role in curriculum development in their schools. Conversely, teachers in the remaining two schools studied reported that they had little influence on the curriculum that they taught.

Those teachers who did influence curriculums reported that they were able to develop new courses of study or modify those being used by obtaining approval of administrators. This approval was granted provided the changes were justified. These teachers reported having carte blanche in determining course content.

Those teachers who reported having little input into curriculum development taught in districts adopting prescribed course curriculums. These curriculums were developed and their use mandated by local school administrators. In these instances teacher input into curriculum development was limited to participation in curriculum committee meetings, discussing concerns with administrators and serving on textbook selection and similar committees.

Faculty members provided information outlining their extracurricular activities. Nearly two-thirds of the respondents indicated that they were involved with some type of extracurricular activity that involved students. The greatest number of teachers either served as coaches or were otherwise involved in school athletics. Several of the respondents were class sponsors. Other extracurricular activities listed were: directing plays, serving as club sponsors, directing school yearbook or newspaper staffs, directing the school band, and conducting college tours for upperclass students (eleventh and twelfth-graders).

A final question asked teachers whether they held any jobs outside of the school during the school year. Thirty-nine percent of the respondents indicated that they did hold additional jobs during the school year. Nearly all of these jobs provided a second income for the teachers.

A larger percentage of the teachers who were questioned reported working during the summer months as well. Fifty-seven percent of the respondents held jobs during the summer. Principle reasons given by the teachers for working during the summer were to supplement their income or to keep themselves occupied. Again, the majority of these jobs provided additional income.

## IMPLICATIONS

Financial support for the rural school is dependent upon an agricultural tax base. Erosion of that tax base has resulted in rural teachers beginning to question the continued support for education in rural communities. Support for schools should not primarily depend upon the real estate tax base within school district boundaries.

A small percentage of teachers felt that agriculture was only of minor importance in the rural community. Evidently, these teachers failed to recognize the extent to which agriculture provided support for the local economy. Current and future teachers should understand that rural communities could not continue to exist without the contribution made by agriculture to the economies of rural districts.

Community support for vocational agriculture programs varied according to the perceived strength of the vocational agriculture teacher. The ability and willingness of the teacher of agriculture to conduct an exemplary program may be an essential ingredient for support of and success by secondary agriculture programs in the future.

Most teachers preferred the rural school over the other alternatives as as place to work. However, problems were of a much different type and magnitude than one might find in urban areas. At The Ohio State University, undergraduates wishing to be certified to teach are required to have experiences in urban schools. These students should also be required to experience rural school situations if a uniform undergraduate program is to be maintained and students are to be suitably prepared for teaching.

Some teachers found it difficult to adapt to the traditional rural community structure. Teachers with rural backgrounds may have more realistic expectations concerning what it is like to live and work in rural areas. Teachers should not be surprised that their teaching ability is continually being informally evaluated and reported throughout the community.

There seemed to be more informality in the rural schools included in the study than one would expect to find in larger schools and/or more urban schools. Classes were interrupted frequently.

Interpersonal communications are normally used in place of written memos. Teachers in these situations must be tolerant of class interruptions and of other activities which may require plans to be changed on the spur of the moment.

In these small schools, teachers were expected to assist with extracurricular activities. These responsibilities were generally assigned to new teachers. These facts dictate that teacher preparation programs should provide students the opportunity to develop abilities needed to supervise organizations and groups.

Many of the teachers reported that they "moonlight" by holding down one or more jobs in addition to their teaching position. However, income of teachers was high compared to others in the community. The extra jobs may have been for extra income, for a diversion, or for using available time wisely, particularly during the summer months.

The contributions made by rural schools and teachers within these schools were vital. While rural teachers faced special problems, most were satisfied with their work and the areas in which they lived. These teachers were actively involved in the school and community as exhibited by their participation in various activities. Rural teachers were also cognizant of the vital role played by the school and agriculture in rural communities.

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# VOCATIONAL AGRICULTURE TEACHER PERSONALITY AND EFFECTIVE TEACHING: IS THERE A RELATIONSHIP?

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## INTRODUCTION

A recent call, nationwide, for educational excellence (Boyd, 1982; Boyer, 1981, 1983; Broudy, 1983; Goodlad, 1984) has left educators scrambling in an effort to develop better ways to improve student learning. The educational journals are filled with a plethora of failures within the nation's public educational systems. Suggested solutions to present educational woes are plentiful, ranging from administrative and economic reform to wholesale overhauls in teacher preparation programs.

Naturally, there exists no single solution, but rather a variety of ways to help improve the teaching and learning process. One of these solutions could very well be a better understanding and utilization of how teacher personality affects the teaching and learning process.

Many theories, and a great deal of research over the years have contributed to the understanding of the psychological processes involved in teacher-learner interaction. At the same time there appears to be many notions, based upon folklore and reflective observation, which have guided conventional educational wisdom. Differences of student and teacher personality styles or characteristics have recently been interjected into this discussion.

Based both on research and intuitive speculation, personality type theory, as first developed by Carl Jung, has been promoted by many as being a tool for analyzing why normal individuals perceive and respond to information and/or situations differently.

Today, personality type theory is being promoted as a tool for understanding the match or mismatch of teacher and student in the classroom; in guidance and career counseling; and in helping to determine the path each individual may choose to follow in fulfilling his or her individual educational experience.

This nationwide study, conducted at the University of Nebraska - Lincoln, was undertaken during the Spring of 1987 to determine if certain teacher personality types may more readily exhibit certain instructional competencies necessary for effective teaching.

### Theoretical Background

When attempting to effect any meaningful change in student learning outcomes, the overwhelming variable to that change is the classroom instructor. To make any significant improvement of the teaching and learning process, it becomes imperative that educators recognize this fact. Beyond this, it is necessary for educational change agents, teacher educators, and the teachers themselves to not only perceive, but to utilize the individual differences that exist among classroom teachers.

Though thought to be random by many, these differences form measurable patterns, which when analyzed, can account for varying motives, interests, aptitudes and abilities of the classroom teacher.

The following summarizes each dichotomous pair of personality factors as first identified by Carl Jung and explained by Myers and Myers (1980).

Extraversion or Introversion. Extraverted (E) persons prefer to rely heavily on the environment for stimulation and guidance. They prefer interaction to solitude and gain energy by acting upon, and with their environment. Introverted (I) individuals are mainly concerned with the inner world of concepts and ideas. They are thoughtful and contemplative, preferring to rely more heavily on enduring concepts rather than transitory external events.

Sensing or Intuition. Sensing (S) individuals tend to focus on the concrete experience. Using the five senses, they perceive the present moment for what it is, possess acute powers of observation, have memory for details, and exhibit practicality. Intuitive (I) individuals perceive the possibilities, relationships, and meaning of events by way of insight. They relay on hunches, guesses, or creative patterns in events. They prefer to go beyond what is visible to the senses to consider the possibilities that may exist.

Thinking or Feeling. Individuals exhibiting a preference toward the thinking (T) function are more logical, analytical and impersonal in their decision-making process. They prefer to view choices as either right-wrong, true-false, or positive-negative. Individuals exhibiting a preference toward the feeling (F) function are more subjective than thinking types. They prefer to consider the personal and interpersonal values, merits and consequences of their decisions before taking action. They value harmony and wish to weigh the effect a decision may have on others before acting.

Judgment or Perception. An individual preferring judgment (J) seeks closure, makes plans, and generally organizes their life-style around purposefully, organized decisions. Individuals preferring perception (P) look at the possibilities of life. They prefer openness and freedom, are flexible, and generally organize their life-style in a spontaneous and adaptable way.

Taken together, these four dichotomous preference scales combine to form sixteen different preference categories related to personal orientation, how information is perceived, how decisions are made, and preferred life-styles.

The four temperaments. Keirsey and Bates (1978) combined the sixteen possible combinations into the four behavioral categories of sensing-judgment (SJ), sensing-perception (SP), intuitive-feeling (NF) and intuitive-thinking (NT), resulting in Keirsey's "temperaments."

Accordingly, the SJ (sensing-judgment) teacher uses well established classroom routines, prefers obedient students and is impatient with non-conformists. They teach sequentially, and are clear and articulate and are interested in developing student usefulness in society.

The SP (sensing-perception) teacher provides a variety of action experiences, is interested in developing freedom and spontaneity in students. and is not burdened by the belief that learning is its own reward.

The NF (intuitive-feeling) teacher is student oriented more than subject oriented, tends to individualize instruction, conducts democratic classrooms, and can operate a "three ring circus" in the classroom, having a high tolerance for simultaneous activities. They are interested in the social as well as intellectual development of their students.

The NT (intuitive-thinking) teacher is subject centered, moves rapidly through material with little redundancy and is interested in the development of intelligence within the student.

## PURPOSE AND OBJECTIVES

The major purpose of this study was to examine the relationship between personality and teaching effectiveness of secondary vocational agriculture teachers. Specific questions to be answered as a result of the study were as follows:

1. What is the personality profile and characteristics of secondary vocational agriculture teachers?
2. What is the overall level of teaching effectiveness of secondary vocational agriculture teachers?
3. Does a relationship exist between teaching effectiveness and personality characteristics of secondary vocational agriculture teachers?

## METHODOLOGY

A survey research design was utilized in order to develop a personality profile of the study group and to examine relationships between personality types and teaching effectiveness. Two instruments were independently utilized for the collection of data. First, the Myers-Briggs Type Indicator (MBTI), Form G, was mailed to 232 randomly selected secondary vocational agriculture teachers from 24 states. Only teachers with three years continuous employment within their present school were surveyed. The data collected from this survey were utilized to develop a personality profile of the sample.

Second, to obtain data on the teaching effectiveness of respective teachers, each responding teachers' local instructional supervisor was surveyed, using a teaching effectiveness rating instrument developed by the researcher, which was based upon the writings and research of Coker and Coker (1982). The instrument was pilot tested with reliablity coefficients ranging from .86 to .91 (average = .88).

A total of 193 responses were received from the sample of secondary vocational agriculture teachers for a 81.4 percent return rate. Correspondingly, 172 instructional supervisors of the original 193 contacted responded, for a return rate of 89.6 percent.

The Selection Ratio Type Table (SRTT) program (Allen, Myers & Kainz, 1976) was utilized to determine personality type frequencies. To determine teaching effectiveness differences between personality groups within the sample, the Kruskal-Wallis One-Way Analysis of Variance and the Mann-Whitney-U Statistic were employed. An alpha level of .10 (two-tailed p) was set for answering question three because of the exploratory nature of this portion of the study, the small sample sizes compared, and the desire of the researcher not to commit a type-two error.

## RESULTS

### Distribution of Sample by Type

As indicated by Table 1, the results of the study indicate a high percentage of secondary vocational agriculture teachers preferring the characteristics of ISTJ (37.31%), along with a high percentage preferring ESTJ (20.21%).

Far fewer teachers than expected were found to prefer the characteristics of ENFJ, INFJ, ENFP, INFP, all of which combined to account for only 5.7% of the sample.

Comparing the four temperaments. the sensing-judgment (SJ) combination made up well over half (69.9%) of the sample followed at a distant second by the sensing-perception (SP) type teacher (13.5%)

The overall dimensions of introversion (I), sensing (S), thinking (T), and judgment (J) were the predominant personality characteristics within the sample which supports type theory suggesting that the -STJ type teachers are attracted to the practical, hands-on aspects of vocational agricultural education.

### Teacher Effectiveness Comparisons

Each of the 22 instructional competencies, grouped under three major subheadings, are listed in Table 2. The data indicate that the sample of secondary vocational agriculture teachers, as a group, were rated in the "above average" range throughout, and on competencies 6,8,9, and 10 they averaged near the "proficient" range.

However, when an analysis of variance was conducted on different type groupings, statistically significant differences were found. Teachers ranked highest by their instructional supervisors possessed the personality characteristics of extroversion (E) and judgment (J), and the temperament of sensing-judgment (SJ). Those teachers possessing the characteristics of introversion (I) and perception (P), and/or the temperament of sensing-perception (SP) were consistently ranked lowest.

Table 3
Psychological Profile of Secondary Vocational Agriculture Teachers in the Sample
N = 193

| MBTI Type | | |
|---|---|---|
| Factors | N | % |
| ISTJ | 72 | 37.31 |
| ISTP | 13 | 6.74 |
| ESTP | 8 | 4.15 |
| ESTJ | 39 | 20.21 |
| ISFJ | 13 | 6.74 |
| ISFP | 3 | 1.55 |
| ESFP | 2 | 1.04 |
| ESFJ | 11 | 5.70 |
| INFJ | 2 | 1.04 |
| INFP | 5 | 2.59 |
| ENFP | 3 | 1.55 |
| ENFJ | 1 | 0.52 |
| INTJ | 4 | 2.07 |
| INTP | 2 | 1.04 |
| ENTP | 5 | 2.59 |
| ENTJ | 10 | 5.18 |

| Indices | | |
|---|---|---|
| Factors | N | % |
| E | 79 | 40.9 |
| I | 114 | 59.1 |
| S | 161 | 83.4 |
| N | 32 | 16.6 |
| T | 153 | 79.3 |
| F | 40 | 20.7 |
| J | 152 | 78.8 |
| P | 41 | 21.2 |

| Temperaments | | |
|---|---|---|
| Factors | N | % |
| SJ | 135 | 69.9 |
| SP | 26 | 13.3 |
| NT | 21 | 10.9 |
| NF | 11 | 5.7 |

Table 2
Teaching Effectiveness Competency Ratings
of the Secondary Vocational Agriculture Teachers
N = 172

| Competency | Mean* | S.D. |
|---|---|---|
| I. TOPIC: INSTRUCTIONAL STRATEGIES, TECHNIQUES,AND/OR METHODS. | 6.761 | 1.337 |
| 1. Uses a variety of instruction strategies | 6.674 | 1.455 |
| 2. Uses convergent and divergent inquiry strategies | 6.256 | 1.472 |
| 3. Develops and demonstrates problem-solving skills. | 6.692 | 1.557 |
| 4. Establishes transitions and sequences in instruction which are varied, logical, and appropriate. | 6.541 | 1.542 |
| 5. Modifies instructional activities to accommodate identified learner needs. | 6.657 | 1.687 |
| 6. Demonstrates ability to work with individuals, small groups, and large groups. | 7.238 | 1.632 |
| 7. Structures the use of time to facilitate student learning. | 6.628 | 1.586 |
| 8. Uses a variety of resources and materials. | 7.012 | 1.589 |
| 9. Provides learning experiences which enable students to transfer principles and generalizations outside of school. | 7.152 | 1.495 |
| II. TOPIC: COMMUNICATION WITH LEARNERS. | 6.728 | 1.323 |
| 10. Provides group communication experiences for students. | 7.012 | 1.422 |
| 11. Uses a variety of verbal and non-verbal communication skills with students. | 6.733 | 1.485 |
| 12. Gives clear directions and explanations. | 6.977 | 1.430 |
| 13. Motivates students to ask questions. | 6.628 | 1.612 |
| 14. Uses questions that lead students to analyze, synthesize, and think critically. | 6.407 | 1.583 |
| 15. Accepts varied student viewpoints and/or asks students to extend or elaborate answers or ideas. | 6.698 | 1.515 |
| 16. Demonstrates proper listening skills. | 6.709 | 1.521 |
| 17. Provides feedback to learners on their cognitive performance. | 6.663 | 1.480 |

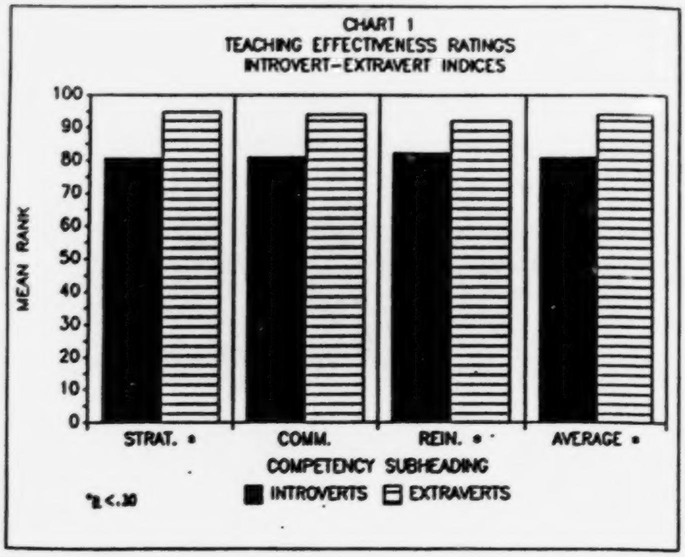
(Continued on next page)

| Competency | Mean* | S.D. |
|---|---|---|
| III. TOPIC: LEARNER REINFORCEMENT-INVOLVEMENT | 6.779 | 1.478 |
| 18. Maintains an environment in which students are actively involved, working on task. | 6.860 | 1.824 |
| 19. Implements effective classroom management for positive student behavior. | 6.826 | 1.708 |
| 20. Uses positive reinforcement patterns with students. | 6.826 | 1.550 |
| 21. Assists students in discovering and correcting errors and inaccuracies. | 6.900 | 1.434 |
| 22. Develops student feedback, evaluation skills and student self-evaluation. | 6.471 | 1.528 |
| TOTAL MEAN | 6.753 | 1.323 |

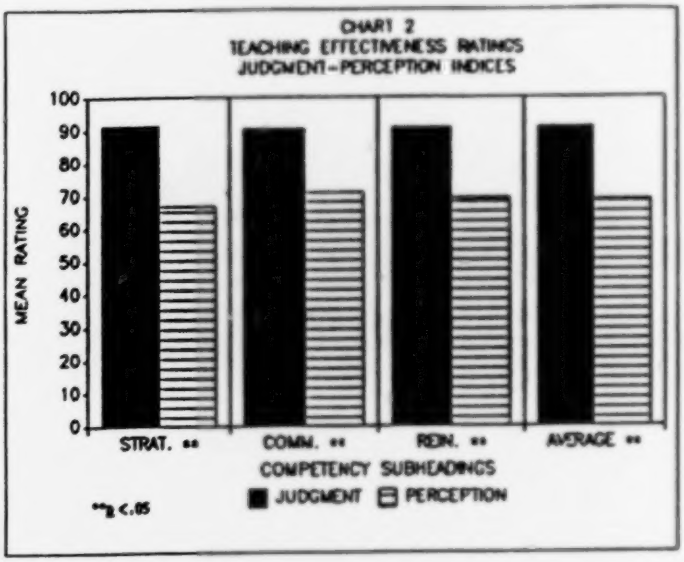
* Competency Rating Scale used in the Study

| | | | | |
|---|---|---|---|---|
| 9 \ / 8 | 7 \ / 6 | 5 ¦ | 4 \ / 3 | 2 \ / 1 |
| PROFICIENT | ABOVE AVERAGE | AVERAGE | BELOW AVERAGE | DEFICIENT |

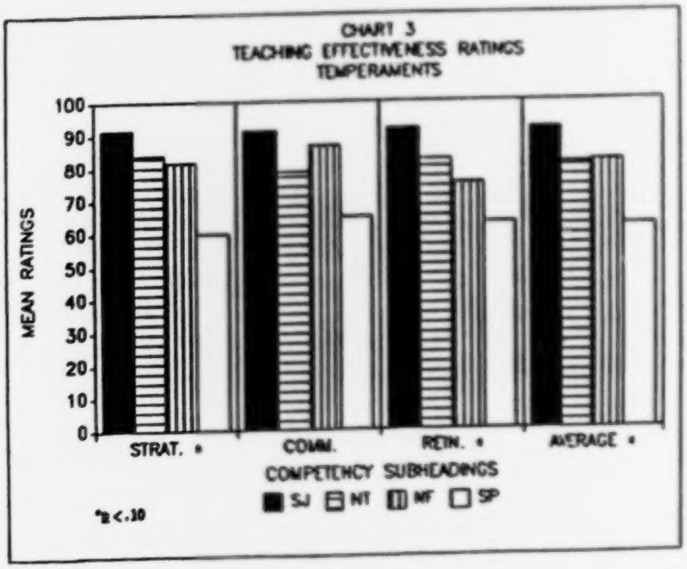
Specifically, as shown in graph 1, extraverts (E) rated higher than introverts in the areas of "instructional strategies, techniques and/or methods" (p = 0.0649), "communication with learners" (p = 0.0865) and in their overall scores (p = 0.0875).



Teachers exhibiting the characteristic of judgment were ranked higher on all three competency subgroups (Graph 2). which included "instructional strategies, techniques and/or methods" (p = 0.0107), "communication with learners" (p = 0.0432), learner reinforcement-envolvment" (p = 0.0244), and in the overall average rating (p = 0.0207) than did teachers with perception (P).



Comparing the four temperaments (graph 3) revealed that teachers of the SJ temperament ranked higher on the competencies grouped as "instructional strategies, techniques, and/or methods" (p = 0.0692), "learner reinforcement-involvement" (p = 0.0930), and overall (p = 0.0932), while the NF and NT temperaments were consistently ranked in the middle and the SP temperament types ranked lowest.



# DISCUSSION

The secondary vocational agriculture teachers, in this study, had a group preference for introversion, sensing, thinking, and judgment (ISTJ). Keirsey (1978), Lawrence (1979), and Myers & McCaulley (1985) indicate that these types prefer teaching in areas where practical applications and utility of knowledge are valued. The findings of the study support the theory that the sample of secondary vocational agriculture teachers would contain an abundance of sensing-thinking-judgment types.

Intuitive-feeling types were under-represented in the sample. Myers and McCaulley (1985) describe the intuitive-feeling types as people who, "...do not focus their attention upon concrete situations. Instead, they focus their intent upon possibilities, such as new projects, things that have never happened but might be made to happen, or truths that are not yet known but might be" (P. 35).

Intuitive-feelers are concerned with the development of possibilities, especially in people, and are attracted to teaching (Keirsey, 1978). However, the findings of this study indicate that they are not especially drawn to secondary vocational agriculture teaching, or if they are, the do not stay long. Perhaps, according to type theory, they do not necessarily enjoy the technical or practical nature of vocational agriculture, but rather prefer to teach in other areas of a less pragmatic nature.

Type theorists suggest that teachers possessing a preference for sensing and perception (SP) are action-oriented and are not attracted to the usual classroom atmosphere. They prefer "doing" to just talking about it, and would generally provide experiences for their students rather than theoretical discussion of curricular topics. Perhaps this could explain the relatively high percentage of this personality type in the sample of vo-ag teachers.

It is interesting to note the high frequency of introverted types choosing vocational agriculture teaching as a career. Farming, in general, is a very individualistic profession. Introverted teachers, like their farmer counterparts, would be highly self-reliant, enjoying the relative detachment from other school activities associated with running the vocational agriculture program, which is often physically separated from the main school building. As a group, the ISTJ types are conservative, hard working individuals, preferring common sense to theory.

As a group, the secondary vocational agriculture teachers in the sample were rated above average (mean of 6.75 on a 9 point scale) in their teaching abilities by their instructional supervisors. They were rated especially high in their ability to use a variety of resources and materials (7.01); their ability to work with individuals, small groups and large groups (7.24); their ability to provide transferable learning experiences (7.15); and their ability to provide group communication experiences for learners (7.01).

Variety of experiences, through resource materials and activities is the central theme to which their highest ratings could be attached. The FFA motto:

Learning to do
Doing to learn
Earning to live
Living to serve.

would tend to fit well with the -STJ personality profile established on this sample of vocational agriculture teachers, who, themselves, are FFA advisors. Traditionally, those associated with vocational agriculture teaching have prided themselves in their ability to provide exactly the type of instruction with which a number of the topics were identified as being important to effective teaching.

Teaching effectiveness ratings were compared on each of the four indices (I-E, S-N, T-F, J-P), and on the four temperaments (SJ, SP, NT, NF). There existed sufficient evidence to indicate that a relationship can be established between teaching effectiveness and several of the personality characteristics. Conclusions relative to each of these findings are provided in the following discussion.

Extraversion and Introversion. Extraverted secondary vocational agriculture teachers, as a group, ranked higher in the variety of instructional methods used, resources and materials used, and transferable learning experiences provided, than the introverted teachers ($p = .10$). They also ranked higher than introverts in their verbal and non-verbal communication skills, motivation provided students to ask questions, and their ability to provide feedback to learners on their cognitive performance ($p = .10$).

Since extraverts, according to type theory, are oriented toward the outer world of people and things, it would be expected that they would score higher in areas associated with variety of experiences and communication.

Judgment and Perception. Secondary vocational agriculture teachers in the study preferring judgment ranked higher than those preferring perception in all three subcategories ($p = .05$). Specifically, they ranked higher in the variety of instruction and resources provided, clarity of instructions and explanations, structure, questioning and listening skills, motivation of students to ask questions, classroom management, and their ability to develop student self-evaluation. Individuals possessing judgment as a preference, according to type theory, value organization and prefer to manage their environment rather than react to it as perceptive types do. Their high scores in these areas are as expected.

The Temperaments. Those secondary vocational agriculture teachers in the sample having the SJ (sensing-judgment) temperament ranked significantly higher than the other three types in two of the three areas, while those with the SP (sensing-perception) temperament ranked significantly lower. Specifically, these were the competencies grouped as "instructional strategies, techniques and/or methods", and "learner reinforcement-involvement".

The first category reflects the teacher's ability to plan, organize and deliver instruction, while the second category reflects the teacher's ability to manage the learning environment and student behavior.
Individuals of the SJ temperament are apt to have well established classroom routines. Their work is more likely to be planned in advance, sequential in presentation, and clear in articulation.

The SP teachers are apt to be somewhat unpredictable, and students seldom know what might happen from day to day. If absolutely forced, SP teachers may turn in their plans, but they are not likely to follow them with any regularity. They value too much their freedom to respond to whatever impulse strikes them on a given day or at a given moment.

The mean rank scores on teachers in this study would tend to demonstrate that instructional supervisors favor the SJ (sensing-judgment) approach more than that of the SP (sensing-perception), and therefore, tended to rank them accordingly higher.

## CONCLUSION, IMPLICATIONS AND RECOMMENDATIONS

Teacher personalities may indeed play a role in the effectiveness of the educational process as some teacher types were rated more proficient in their instructional effectiveness than other types.

These findings have a number of far-reaching implications. Though each of the sixteen personality types were represented in the sample, clearly there existed a group preference for the sensing, thinking, and judgment characteristics.

Do these types better match the present instructional demands inherent in teaching secondary vocational agriculture than the other types? According to Myers and McCaulley (1985), a mismatch between personality type and occupation causes an individual to experience exhaustion, discouragement and feelings of inadequacy. This does not explain, however, why the frequency of introverts would be higher than extroverts.

Although certain personality types should not be discouraged from pursuing teaching careers in vocational agriculture, perhaps they could be made better aware of the nature of the career. Intuitive-feeling types could be made aware of the pragmatic instructional nature of vocational agriculture programs. Accordingly, perceptives could be made to understand that vocational agriculture teaching requires thorough planning and the delivery of structured learning experiences, rather than a "let's try it and see what happens" approach to learning.

Further implications concerning the performance difference established in this study between extraverts and introverts should be considered. Though a career in farming has been found to have a great attraction for introverts, the skills required of a secondary vocational agriculture teacher are not necessarily the strengths of the introvert. The data indicate that on a number of the competencies required of a classroom teacher, introverts were scored significantly lower by their supervisors. Introverted students preparing to be vocational agriculture teachers should be made aware of their possible deficiencies within these skill areas, and if possible, be helped to better develop such skills.

The findings suggest that perceptives scored significantly lower than judgers throughout the competencies investigated. Might this be a product of the preferred type characteristic of the instructional supervisors doing the ratings? Brandt (1983) found that 52% of secondary principals were introverted, sensing, thinking, judging (ISTJ). It might be well to consider what effect the match or mismatch between teachers and instructional supervisor may have on the teacher ratings in this study.

Based upon the research findings and the implications of those findings, the following recommendations have been formulated.

1. Vocational agriculture teacher educators should reevaluate the nature of vocational agriculture teaching with regard to the different personality types of their students.

2. Preservice instruction in psychological type theory should be provided to those students preparing to become vocational agriculture teachers.

3. Secondary school administrators, especially those with responsibilities for instructional improvement and evaluation, should seek strategies which might help certain types of teachers to become more proficient in their weaknesses.

4. Inservice training programs on personality type should be developed to assist teachers in understanding their own personality preferences.

This research should not be interpreted to exclude any personality type from pursuing a career as a secondary vocational agriculture teacher, rather it should provide some understanding and realization that each type contributes in its own unique way. The challenge for teacher educators, supervisors and teachers is to better understand and appreciate the implications of personality theory and to translate that understanding into practice.

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# PRIORITIES OF BEGINNING TEACHERS OF AGRICULTURE IN MISSOURI

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(A Critique Prepared by Blannie E. Bowen)

## A. Research Methods

The authors sought to determine what priority vocational agriculture teachers who began teaching in Missouri in the fall of 1986 gave to 35 activities related to their professional and personal lives. A second purpose was to determine if the fall 1986 beginning teachers ranked the 35 items the same way as 1979 Missouri vocational agriculture teachers. To make these determinations, the researchers compared the 1986 population of 35 beginning teachers with a sample of 1979 teachers. In 1979, 242 of 342 Missouri teachers (71%) were surveyed. How were the 242 chosen? No evidence that they were randomly selected is presented. Why were 242 selected? A 90% response rate was achieved (217 of 242 provided usable responses). What happened to the other teachers? What follow-ups were attempted to show the nonrespondents did not bias the group?

The researchers used an instrument that had good test-retest reliability (.94). No information was supplied about its validity. A 0-4 scale was used for the teachers to rate the 35 items: 0=least important and 4=most important.

## B. Statistical Analyses

"The instrument was designed so that the sum of each respondents' ratings could not exceed 70." How and why was this done? A oneway analysis of variance was used to detect if the 35 items had been given the same priority. Duncan's multiple range test was used to make post hoc comparisons. This analysis is intriguing. What was the unit of analysis? Was this the most appropriate analysis? Are you equating statistical and practical significance? Is there no limit to the comparisons? Should you do all possible pairwise comparisons when 35 items are involved? Would groupings be more revealing? To judge if 1986 beginning teachers ranked 35 activities the same as 1979 teachers, a Spearman rho correlation coefficient was computed.

## C. Major Findings

The authors found that 34 beginning teachers ranked some of the 35 activities significantly higher than others. A coefficient of .91 indicated that beginning teachers and experienced teachers had similar priorities.

## D. Significance to Agricultural Education

Is there a danger in comparing all teachers from 1979 with beginning teachers of 1986. In view of the Excellence Movement and similar 1980s trends, are 1979 teachers really like 1986 teachers? We don't know. Were the 1979 beginning teachers like the 1986 beginning teachers? Again, we don't know. The design prohibits us from knowing. What we have are comparisons for two possibly unlike groups. If evidence had been presented to show that 1979 beginning teachers were like 1979 teachers as a whole, then the assertions would be more tenable. Overall, this study is interesting and quite revealing.

# PERCEPTION OF SECONDARY TEACHERS CONCERNING PUBLIC SCHOOLS IN RURAL COMMUNITIES

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(A Critique Prepared by Blannie E. Bowen)

## A. Research Methods

An excellent rationale is presented for doing this study of rural schools in Ohio. The researchers document the need for the study by noting that few studies have appeared in the literature. They presented four clearly written questions to be answered.

Qualitative methods were used to answer their questions. The researchers avoided using sophisticated quantitative approaches in a situation where qualitative data were clearly needed. The use of qualitative methods is commendable. Their definition of rural schools is helpful: (1) areas outside a Standard Metropolitan Statistical Area (SMSA), (2) counties with fewer than 40,000, (3) schools that offered high school vocational agriculture, and (4) high schools with fewer than 500 students. Schools were further stratified geographically into four groups to account for social and economic differences. A teacher not teaching during a particular period was chosen at random to be interviewed, i.e. six teachers per school.

Limited information is provided about the interview schedule. It was content validated by a panel of former teachers. How many? Were they similar to teachers included in the study? What was the nature of the field test? Who did the interviews? During the study, the interviews lasted most of the period. How long were the periods? More details would clarify these questions.

## B. Statistical Analyses

A major criticism of qualitative studies is the reliance upon a researcher's judgment. In this study, the narrative amplified and illuminated what the researchers discovered. But in presenting findings for only 24 cases, being conservative is best. Use numbers in lieu of percentages. If one teacher changes categories, you get a 4% swing. For example, the authors said the majority considered agriculture to be important, almost 40% said it was of some importance, and 10% said it was of minor importance. A swing of one teacher means the majority viewed agriculture to be of some or minor importance rather than very important. Further, can 57 percent of 24 teachers hold summer jobs? Should it be 14 of 24 teachers or 58%, i.e. the percentage problem surfaces. Fortunately, you didn't use percentages throughout the manuscript.

## C. Major Findings

Is support for rural schools waning? Do citizens of some communities actually have an accurate perception that agriculture is not as important as we perceive it to be? This is one area where an interpretation of the data perhaps led to false assumptions or implications. Are the school districts as dependent upon an agriculture base as you suspect? More data must be shared about the communities.

Where do parents of the students work? Are many of the communities in fact very transient and the parents work in nonagricultural industries? How many commute to jobs in factories or industries 30-50 miles away, thus having an indirect effect on the local economy? Do large farms predominate? Is there limited purchasing of supplies and services, little processing, and limited consumption actually occurring in rural communities? With improved transportation and communications, are rural schools as tied to agriculture as we like to think?

Are rural schools that much different from schooling in urban and suburban areas? The factors teachers cited that hindered instruction included funding, equipment, teaching materials, and facilities. Others included out-of-date materials, frequent class interruptions, scheduling of classes, and being bused long distances. Students in my neighborhood travel about four miles to school, yet some leave home about 7 a.m. I traveled 27 miles to a rural school and left home at 7:05. There is danger in equating distance and travel time.

## D. Significance to the Profession

Should there be recommendations from this study? None are offered. Where do you go from here? So what that we know more about rural schools in Ohio?

Overall, this is an interesting study using an equally interesting approach. The writing is refreshing, clear, and concise. One must question, however, the researchers' use of priciPAL and principLE. Are the two interchangeable? This is a principal flaw. My challenge to the researchers is to not stop with this line of inquiry. Draw comparisons to urban and suburban schools. The findings could be quite illuminating.

# VOCATIONAL AGRICULTURE TEACHER PERSONALITY AND EFFECTIVE TEACHING: IS THERE A RELATIONSHIP?

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(A Critique Prepared Blannie E. Bowen)

## A. Research Methods

To answer their questions, the researchers used two data collection approaches. First, the Myers-Briggs Type Indicator instrument was used to develop personality profiles. This instrument was mailed to 232 randomly selected secondary vocational agriculture teachers from 24 states who had taught in the same school for three years. An 81% response rate was achieved (193 teachers). Several questions immediately come to mind. What frame was used to identify the population? How was the sampling done and with what margin of error? What do the nonrespondents (19%) look like? What follow-ups were attempted? Answers to these questions were not presented.

Next, to assess teacher effectiveness, local instructional supervisors for the 193 responding teachers were surveyed. The supervisors rated the teachers on: (1) Teaching Strategies or Methods, (2) Communication with Learners, (3) Learner Reinforcement/Involvement, and (4) Overall Teaching Effectiveness. Supervisors for 172 of 193 responding teachers returned the teaching effectiveness instrument the researchers developed. The reported reliability was very good (.88). No discussion of its validity is presented. The supervisors rated the teachers on a 9-point scale of 1=Deficient and 9=Proficient. What about the 21 supervisors who did not respond? Who were the supervisors and what did they know about vocational agriculture? You did not tell us.

## B. Statistical Analyses

By reporting means and standard deviations for items on a 22-item teaching effectiveness instrument, one assumes the researchers are presenting interval level data. Yet Kruskal-Wallis and the Mann-Whitney-U statistic, both nonparametric analysis procedures, are used. Why? Nunnally (1975, p. 298)) suggested that, "Unless there are extreme violations of the assumptions underlying the analysis of variance, it is recommended that ANOVA be employed ... " Three bar graphs labeled Charts 1-3 show mean rank, mean rating, and mean ratings, respectively. All have a scale of 0-100. Why the 0-100 scaling? Objective 3 says a relationship (Mann-Whitney-U or Kruskal-Wallis); the analysis section says differences in teaching effectiveness. Consistent nomenclature is needed.

## C. Major Findings

Over 37% of the teachers were categorized as ISTJ (Introverted, desired concrete experiences and practicality, wanted right/wrong dichotomous choices, and wanted closure to planned activities). Twenty percent were extroverts who had the same other three traits. Mean ratings for the three teaching effectiveness constructs ranged from 6.73 to 6.78 with an overall rating of 6.75 out of 9 possible.

What is the relationship between teaching effectiveness and personality characteristics? It depends on how sophisticated an analysis you perform. Findings presented in bivariate format show extroverts were overall more effective teachers. Table 3 shows that almost 60% of the teachers surveyed were introverts. You present 16 Personality types. How effective is each if you control for the other 15 types? You simply cannot answer this question unless you use more powerful statistical techniques such as multiple regression or discriminant analysis. Further, how does personality differ for characteristics inferred in objective 1, but not presented in the paper? There will be interaction when you study traits that cannot be divorced from personality?

## D. Significance to the Profession

This interesting study is presented in a somewhat cumbersome and wordy paper. The authors crammed too much into the paper. Clearly, more questions than answers are raised. The authors cited the work of Brandt that said 52% of principals were introverted, sensing, thinking, and judging? Does this sound familiar? Is there interaction based upon type of teacher and type of principal? Probably.

The researchers don't cite a master's thesis by Neff (1982, p. 48) that said, "Vocational agriculture students in Ohio are slightly extroverted, mildly sensing, mildly thinking, and mildly perceptive as opposed to being introverted, intuitive, feeling, and judging." What does this mean? Can we match teacher, learner, and principal styles?

Several fundamental questions must be asked. How does personality type relate to instilling knowledge, teaching skills, and bringing about desired attitudinal changes? Second, do we really want clones? Does America not need creative, diverse, free thinking, and nontraditional teachers of agriculture? Can personality be changed? Before hinting at ways to keep the profession homogeneous, better substantiate your claims. As presented, this study must be viewed in the proper context. Teacher ratings are one issue; student learning is a more important concern.

# THE EFFECT OF ATTENDANCE AT A JOINT VOCATIONAL SCHOOL ON MOTIVATION TOWARD SCHOOL OF VOCATIONAL AGRICULTURE STUDENTS

(PHASE I OF III)

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## INTRODUCTION

Schools exist to help children learn. However, if students drop out of school before being graduated, the main purpose of schools cannot be fulfilled. School systems across the nation are searching for effective ways to counteract the high dropout rate, which current estimates put at 27 percent of those who enter high school (Grossnickle, 1986).

Schools are using a variety of approaches to address the dropout problem. One approach is the offering of vocational and work-study programs. The state of Ohio chose to expand its vocational education offerings in the 1960's through the joint vocational school approach. Students could attend the joint vocational school in lieu of attending their local schools during the junior and senior years. A major objective of the joint vocational school was to provide, via expanded vocational course offerings, the motivation for students to complete high school.

Vocational educators have raised the question as to whether or not the attendance at a joint vocational school resulted in the raising of a student's level of motivation toward school. If the motivational level is changed, then the levels of curiosity, values and personality had to change, also, since they are the component parts of motivation (Frymier, 1965).

Vocational educators have also raised the question as to whether or not there are other factors affecting motivation level other than perhaps the attendance at a joint vocational school. If so, then these factors need to be identified and their possible effects on motivation determined.

## PURPOSE AND OBJECTIVES

The major purpose of the study was to eventually determine the effect, if any, that attendance at a joint vocational school had on the level of motivation toward school for vocational agriculture students. The study will involve three phases.

Phase I: The objectives of this phase were to:

1. Describe the population on the independent and dependent variables. The independent variables were in two groupings: 1) teacher's perceptions (of academic achievement, amount and quality of involvement in FFA chapter activities, amount of involvement in supervised occupational experiences [SOEP], amount of involvement in intra/extra-curricular activities, motivation toward school, reading ability, degree of self-concept, and anticipated student performance in workforce following graduation); and 2) demographic variables (gender, age, family status, socio-economic status, parents' educational levels, and parents' employment status). The dependent variable was the student's level of motivation toward school (personality, curiosity, values, overall score).

2. Determine relationships between variables, especially relationships with the dependent variable, motivation. The following research questions guided the investigation of objective two:

   a. Are teachers' perceptions (of academic achievement, amount and quality of involvement in FFA chapter activities, amount of involvement in SOEP, amount of involvement in intra/extra-curricular activities, motivation toward school, reading ability, degree of self-concept, and anticipated student performance in workforce) related to student motivation and its components?

   b. Are demographic variables (gender, age, family status, socio-economic status, parents' educational levels, and parents' employment status) related to student motivation and its components?

3. Establish baseline data for Phases II and III.

Phases II and III: The objectives will be:

1. Determine the population's level of motivation toward school.

2. Determine if there was any significant change in motivational level after one and two years at a joint vocational school.

3. Determine if there were any significant differences in motivational levels between students who remained at the local school and those who attended the joint vocational school.

## PROCEDURES

### Design

The design for Phase I of the study was correlational in nature, allowing the researchers to investigate relationships among variables.

### Population

The population for Phase I consisted of sophomore students enrolled in production vocational agriculture classes during the 1985-86 school year in local schools that were in the vocational education planning districts (VEPD's) of Penta County Joint Vocational School, Four County Joint Vocational School and Vantage Joint Vocational School. These VEPD's comprise the northwest section of the state of Ohio, and include cities, villages and farm land. The total population of 400 students was used in the study.

### Data Collection and Instrumentation

The data for Phase I were collected during the month of May, 1986. The instrument measuring the dependent variable was the Junior Index of Motivation (JIM Scale) (Frymier, 1965). The original instrument was reformatted following suggestions by Dillman (1978), and was administered to the students by the individual teachers in the local programs. The 80-item instrument had been validated for similar populations and tested for reliability. Students responded to 80 items (30 were "fillers," and 50 were scored) using a Likert-type summated scale of Strongly Disagree = 1 to Strongly Agree = 4. A perfect score for overall motivation would have been 200. There are three sub-scales of the JIM Scale containing seven items each: personality, curiosity, and values. Each respondent received an overall score for motivation (sum of 50 items) and a score for each sub-scale (sum of seven items each).

Information on the independent variables for the study was gathered on a supplemental sheet completed for each student by the teacher. All of the instruments were sent in packet form to the teachers to be distributed. The accepting sample of students was 371, but the final usable data sample was 350; thus results are based on 350 sophomore high school students (87.5 percent return rate). Because students not returning instruments were either too new to the program or absent at the time of measurement, no differences were anticipated and were not followed up.

### Analysis of Data

Descriptive statistics (frequencies, percentages, measures of central tendency, and variability) were used to organize and summarize the data. Pearson correlation coefficients were used to determine the nature and strength of relationships between other variables. The t-test and chi squares were used to compare groups on selected variables with the alpha set a priori at .05.

## RESULTS

A summary of the results of Phase I of the study are presented by objective.

### Objective One

Most students were male: 87 percent male; 13 percent female. The majority were 16 years old (67 percent) at the time of the study. The vast majority of the students came from two-parent households and most families had medium income (84 percent). Most parents were high school graduates and many (33 percent of the mothers and 42 percent of the fathers) were non-farm blue collar workers. Twenty-four percent of the mothers and two percent of the fathers were unemployed.

Teachers rated each student on the variables stated in objective one of Phase I. The scale used was a 10-point Likert-type response scale interpreted in the following way: 1-3.5 = low; 3.51-7.5 = medium, 7.51-10 = high. The average ratings for all the teacher perception variables were in the medium range (Table 1). Teachers rated students highest on expectations of performance in the workforce following graduation with a mean of 6.7. The amount of involvement in extra-curricular activities scored a mean of 4.8, the lowest rating. No student received a perfect score of 10 for teacher perception of motivation.

Scores for the dependent variable, motivation toward school, could range from 0 to 200. The average score of the students was 117 (sd = 13.8), representing a medium range score. Highs and lows were 172 and 100. The sub-scales of personality, curiosity, and values were scored by summing the responses and determining the means for each. The average scores for these three (on a scale of 1 = Strongly Disagree to 4 = Strongly Agree) were: personality, $\bar{x} = 2.6$ (sd = .38); curiosity, $\bar{x} = 2.5$ (sd = .37); and values, $\bar{x} = 2.4$ (sd = .38).

### Objective Two

Objective two was to determine relationships between variables, especially relationships between selected independent variables and the dependent variable, motivation.

A comparison of males and females on personality, values, curiosity and the composite measurement of motivation produced differences with girls scoring higher on all four and significantly higher on values ($\bar{x}$ boys = 2.4, $\bar{x}$ girls = 2.6, $t = -2.85$, $p < .005$) and curiosity ($\bar{x}$ boys = 2.4, $\bar{x}$ girls = 2.7, $t = -4.52$, $p < .000$).

Relationships among variables were investigated using Pearson Product Moment correlation coefficients (Tables 2 and 3). Using the interpretive descriptors of Davis (1971), most relationships were described as negligible. None of the demographic variables held other than negligible relationships with motivation scores except gender (as described previously). There were, however, three relationships between teacher perception variables and motivation scores which were described as low. All were relationships with the subscale, curiosity. The teacher perception variables which had low positive relationships with curiosity were achievement in Vocational Agriculture ($r = .24$), overall academic achievement ($r = .24$), and teacher's perceptions of student motivation ($r = .21$).

## Objective Three

Ratings/scores of each student concerning the independent and dependent variables are filed for comparison during Phases II and III. These data will be needed to achieve the major objective of the study: Does attendance at a joint vocational school improve the level of motivation toward school of vocational agriculture students?

## CONCLUSIONS AND RECOMMENDATIONS

1. Results for Phase I of the study demonstrated that none of the demographic variables in the study except for gender were related to student motivation. This finding suggests that family situation (socio-economic status, income level, parental education and occupation) may not be as important of an influencing factor as has been suggested in previous investigations.

2. Female students were more highly motivated than were male students. Administrators and teachers interested in student motivation may want to investigate further any factors which may contribute to this situation and take steps to foster student motivation in both boys and girls.

3. Generally, teachers' perceptions of student self-concept, participation in school activities, abilities, and expected performance in the workforce were not related to actual student motivation. There were, however, teachers' perceptions which were somewhat related to motivation. Vocational agriculture achievement, overall achievement, and student motivation as perceived by the teacher did have low positive relationships with the motivation subscale, curiosity. Teachers' perceptions are one way to measure reality. The recommendation for future research is that the variables measured in this study using teacher perceptions should be measured using hard data collected from students. The only correlation which suggested that perceptions were related to reality was the perceived student motivation-actual motivation correlation.

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Table 1. Means and standard deviation of teachers' perceptions.

| Variable | Mean | Standard Deviation |
|---|---|---|
| Achievement in Vocational Agriculture | 6.6 | 2.02 |
| Overall Academic Achievement | 5.7 | 1.00 |
| Amount of FFA Involvement | 5.8 | 2.26 |
| Quality of FFA Involvement | 5.7 | 2.34 |
| Amount of SOEP Involvement | 5.6 | 2.37 |
| Amount of Involvement in Extra-curricular Activities | 4.8 | 2.44 |
| Motivation Toward School | 5.2 | 2.17 |
| Reading Ability | 6.3 | 2.02 |
| Self-concept | 6.5 | 1.85 |
| Anticipated Performance in Workforce | 6.7 | 1.88 |

Table 2. Pearson Product Moment correlations for demographic variables and motivation.

| Variable | Personality | Curiosity | Values | Total Motivation |
|---|---|---|---|---|
| Age | - .10 | - .05 | - .04 | - .07 |
| Family Status | .05 | - .02 | .00 | .03 |
| Socio-economic Status | - .16 | - .03 | - .07 | - .05 |
| Mother's Education Level | .04 | .01 | .04 | .07 |
| Father's Education Level | .00 | .03 | .01 | .11 |
| Mother's Employment Status | - .09 | - .02 | - .02 | - .02 |
| Father's Employment Status | - .07 | - .09 | - .09 | .02 |

Table 3. Pearson Product Moment correlations for teacher perception variables and motivation.

| Variable | Personality | Curiosity | Values | Total Motivation |
|---|---|---|---|---|
| Achievement in Vocational Agriculture | .07 | .24 | .12 | .01 |
| Overall Academic Achievement | .15 | .24 | .16 | .05 |
| Amount of Involvement in FFA | .01 | .16 | .10 | .03 |
| Quality of Involvement in FFA | .02 | .17 | .13 | .06 |
| Amount of Involvement in SOEP | .02 | .15 | .08 | - .02 |
| Amount of Involvement in Activities | .10 | .12 | .11 | .07 |
| Perceived Motivation Towards School | .09 | .21 | .19 | .11 |
| Reading Ability | .05 | .10 | .10 | .06 |
| Self-concept | .06 | .10 | .11 | .00 |
| Anticipated Student Performance in Workforce | .08 | .17 | .13 | .02 |

# INTEGRATING BIOLOGICAL PRINCIPLES WITH SECONDARY AGRICULTURE INSTRUCTION

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## INTRODUCTION

Secondary vocational agricultural education may well be in its most tenuous position since its inception more than half a century ago. Program enrollments have dwindled, programs have been cut back or discontinued, and teaching positions have been terminated. Agricultural educators are searching for a way to stem this tide which some feel is leading inexorably toward the demise of secondary vocational agriculture. Why does agricultural education find itself in this position? Largely for two reasons. Because of the "farm crisis" of the eighties, the news media does not portray agriculture as a career choice with a bright future. In the education profession, the "excellence movement" and its subsequent fallout have included backlash against vocational education. As a result of stiffened college entrance requirements, high schools are requiring students to complete more academic credits for graduation (Burton, 1986; Case, 1986).

Though the impact of these two events cannot be downplayed, a more gradual trend has occurred over the past two decades. The traditional clientele served by high school agriculture programs, farm boys, has become nearly nonexistent. At the same time, the content of many vocational agriculture curricula remains geared toward that dwindling audience. Today's potential agriculture students see little relevance in a "farm-oriented" production agriculture program.

The most keenly felt result and evidence of these trends, then, is declining program enrollment (Bottoms, 1982; Burton, 1986). Russell (1986) reported that enrollments in Illinois vocational agriculture programs have decreased from Approximately 24,700 in 1980 to approximately 15,800 in 1985.

The strategy which seems to have gained the most support from agricultural educators, one which is offered for vocational education in general, is summarized by the National Commission on Secondary Vocational Education (1984):

> What is really required today are programs and experiences that bridge the gap between the so-called "academic" and "vocational" courses. The theoretical and empirical bases as well as the practical and applicative aspects of academic courses and vocational courses must be made explicit and meaningful. (p. 14)

Of course, this reaction might be expected at this time from vocational educators, whose programs are in jeopardy. In fact, many agricultural educators have for a number of years advocated the teaching of applied science in vocational agriculture programs (Cragun, 1961; Haye, 1980; Layman, 1967; Michelson, 1965; Peddicord, Christensen, & Butler, 1965; Starling, 1965).

Evidence also exists that this integrated approach could benefit science education as well. The National Science Board Commission on Precollege Education in Mathematics, Science, and Technology (1983) reported an "urgent need" for curricula which utilize science and mathematics applied in practical situations to improve learning and stimulate interest.

## PURPOSE AND OBJECTIVES

The purpose of this study was to determine how well two disciplines, agriculture and biology, may be integrated in a high school agriculture setting. This purpose was accomplished by testing the effect of the incorporation of biological principles instruction into a unit of instruction in vocational agriculture on student achievement and attitudes. The specific objectives of the study were:

1. To identify the principles of biology which could feasibly be introduced into secondary agriculture instruction, and to develop a curricular plan for teaching these principles in an agricultural problem area.
2. To compare the overall achievement level of students taught using the integrated approach with that of students taught using a traditional curriculum.
3. To compare achievement in "applied biology" of students taught using the integrated approach with that of students taught using a traditional curriculum.
4. To compare attitudes toward the curricular plan used of students taught using the integrated approach with those of students taught using a traditional curriculum.

## PROCEDURES

### Research Design

Since intact vocational agriculture classes were used for this study, random assignment of subjects to groups was impossible. Therefore a pretest-posttest control group quasi-experiment was chosen. The treatment consisted of the use of experimental teaching plans and materials for the selected problem area. The treatment was assigned randomly to one-half of the selected sample classes.

### Variables

The dependent variables in this study were overall student achievement, as measured by overall score on a problem area achievement test, student achievement in applied biology, as measured by scores on a subset of "applicative" test items, and student attitude toward the teaching plan used, as measured by a student attitude scale.

The variable "applied biology achievement" bears further explanation. An underlying assumption of this study was that agriculture is, in large part, based upon some principles of biological science. The intent, then, was to measure the students' ability to apply certain principles of biology in order to solve practical agricultural problems, rather than to measure their knowledge of straightforward biology content. This is the key to the integration of biology and agriculture which was the primary purpose of this study.

The primary independent variable investigated was the use of the "integrated approach" teaching plans. The students in the treatment group were taught using the integrated approach plans, while those in the control group received traditional instruction which did not emphasize the application of biological principles. In addition, the student variables background, previous vocational agriculture participation, previous high school biology participation, concurrent high school biology participation, self-perceived interest in agriculture, self-perceived interest in science, post-graduation plans, and attitude toward agriculture were analyzed for their effect on the dependent variables.

## Population and Sample

The population consisted of the students in all of the approximately 336 production vocational agriculture programs in comprehensive high schools in Illinois. Twelve schools were randomly selected from the population. The instructors were contacted and their consent given to participate in the study. Three schools dropped out during the course of the study, therefore the final sample consisted of 104 students in 9 schools, 57 in the control group and 47 in the treatment group.

## Problem Area Selection

Prior to the beginning of the study, a content analysis was conducted of the Illinois Core Curriculum (Hemp & Courson, 1981; Hemp & Courson, 1982; Hemp & Courson, 1983; Russell & Courson, 1984) to ascertain which principles of biology could possibly be incorporated, and into which units of instruction they could possibly be incorporated. A literature review produced a list of 24 principles of biology for incorporation into secondary agriculture programs (Peterson, 1969; Starling, 1965; Sutherland & Sams, 1963). The list of principles was validated by two panels of experts, one from agricultural teacher education, the other consisting of an agronomist and a science educator. Each core curriculum unit and problem area was reviewed by the researcher, and units and problem areas showing promise as locations for incorporation of the principles were identified. As a result, a total of 70 problem areas (35% of the total) were identified which could be used for incorporation of biological principles.

Two problem areas were selected from the core curriculum, "Growing Corn" and "Growing Soybeans". Since the objectives for these two problem areas were identical, they were treated as one. For the treatment group teachers, the teacher's guides for these two problem areas were altered slightly by the researcher to reflect the integration of biological principles into the lesson. Additional information on biological concepts was also provided. The control group teachers used the unaltered core problem area teacher's guides to teach the two problem areas.

## Instrumentation

All instruments were developed by the researcher. The problem area pretest and posttest were adapted from instruments used by Starling (1965), Peterson (1969), and Flowers (1986). A pool of 40 items was reviewed by a panel of experts from the University of Illinois to establish content validity. The items were pilot tested for clarity and reliability and item analysis was performed. A KR-20 coefficient of .82 was achieved for the item pool. Fifteen items were included on the pretest and 24 items on the posttest. Ten items in the posttest were identified as measures of applied biology achievement, and this subset of items was analyzed separately after the overall analysis. Criteria used to identify applicative items required that the item:

1. Required an application of knowledge to a problem.
2. Included some form of action.
3. Apply knowledge based on biological principles.

Two instruments were developed to measure student attitude. Student attitude toward agriculture was measured for use as an independent factor. This instrument was adapted from follow-up instruments used by Iverson and Brown (1979), Arrington and Price (1983), and Arrington (1984). Student attitude toward the curricular plan used was also measured. An instrument was adapted from instruments used by Peterson (1969) and by Flowers (1986). Content validity was established by a panel of experts. Both instruments were pilot tested for clarity and reliability. Cronbach's Alpha coefficients of .85 and .87 were calculated for the attitude toward agriculture and the attitude toward the curricular plan instruments, respectively. Nineteen items were included on the final attitude toward agriculture instrument and twenty items were included on the final attitude toward the curricular plan instrument.

## Data Collection and Analysis

All tests and attitude instruments were administered by the vocational agriculture teachers and sent to the researcher for scoring and analysis. In addition, the teachers completed an instrument containing teacher and program information.

Analysis of covariance was the primary data analysis method used. Pretest scores were used as the primary covariate measures. Descriptive statistics, frequencies, means, standard deviations, percentages, t-tests, and measures of correlation were also used to analyze the data.

# RESULTS

## Characteristics of the Sample

All teachers in the sample schools were male. The number of years of teaching experience ranged from 2 to 22 ($\overline{X} = 9.9$). Teachers in the treatment group averaged 13.5 years of experience, while those in the control group averaged 7.0 years. Two of the nine teachers, both in the control group, had earned master's degrees. All had taken at least one botany-related course in college, and three have taught or were teaching a science course in their local school system. All reported that they incorporated at least some science into their agriculture instruction.

All agriculture programs were classified as traditional production agriculture/agricultural mechanics programs. Enrollment in the agriculture programs of sample schools ranged from 21 to 90 students ($\overline{X}$ - 51). The size of the classes participating in the study ranged from 7 to 20 ($\overline{X}$ - 12).

## Demographic Characteristics and Student Achievement

Demographic data collected on the independent variables grade, background, previous agriculture participation, previous high school biology participation, concurrent biology participation, self-perceived interest in agriculture, self-perceived interest in science, and post-graduation plans are presented in Table 1, along with p values resulting from the test of the hypothesis $H_0$: $p_1 - p_2$. The figures reveal that the control group was more "farm-oriented" than the treatment group, with the treatment group having a significantly higher percentage of students with nonfarm backgrounds. A significantly higher percentage of the treatment group had also completed a biology course prior to the study. Also, a significantly higher percentage of control group students planned on immediate employment after high school. Correlation coefficients were calculated to determine the relationship between the student demographic characteristics and overall achievement. Results are presented in Table 2, revealing that achievement increased significantly with nonfarm students, with previous biology experience, and with plans for further education beyond high school.

Table 1

Student Demographic Characteristics

| Variable | % Treatment | % Control | p |
|---|---|---|---|
| Ninth graders | 15 | 14 | .45 |
| Tenth graders | 45 | 25 | .04 |
| Eleventh graders | 21 | 40 | .05 |
| Twelfth graders | 19 | 21 | .42 |
| Farm background | 40 | 54 | .10 |
| Rural nonfarm background | 11 | 28 | .04 |
| Town background | 49 | 18 | .003 |
| No previous ag. courses | 28 | 26 | .43 |
| 1-2 previous ag. courses | 60 | 51 | .23 |
| 3+ previous ag. courses | 12 | 23 | .12 |
| Previous biology course | 60 | 37 | .03 |
| Concurrent biology course | 32 | 14 | .04 |
| High level interest in ag. | 74 | 77 | .39 |
| High level interest in science | 55 | 49 | .31 |
| Further education plans | 49 | 35 | .12 |
| Immediate employment plans | 17 | 37 | .03 |
| Unsure of plans | 34 | 28 | .30 |

Table 2

Relationships Between Achievement and Demographic Variables

| Variable | r | p |
|---|---|---|
| Background | -.15 | .06 |
| Previous agriculture participation | .08 | .22 |
| Previous biology participation | -.41 | .01 |
| Concurrent biology participation | -.07 | .25 |
| Self-perceived interest in ag. | -.09 | .17 |
| Self-perceived interest in science | -.06 | .28 |
| Post graduation plans | -.21 | .02 |
| Attitude toward agriculture | .28 | .01 |

Table 3

Attitude Toward Agriculture by Group

|  | N | $\overline{X}$ | S.D. | t |
|---|---|---|---|---|
| Integrated Approach Group | 47 | 63.87 | 9.98 | 2.16 |
| Traditional Approach Group | 57 | 60.03 | 8.17 |  |

Data concerning student attitude toward agriculture are shown in Table 3. A t-test revealed that students assigned to the treatment group scored significantly higher than those assigned to the control group ($p < .05$). The significance of preexisting differences between treatment and control group students in background, previous biology experience, post-graduation plans and attitude toward agriculture, combined with the significance of the correlation of those variables with student achievement, influenced the decision to utilize these variables as additional covariate measures in the final analysis.

## Analysis of Student Achievement

Overall student achievement was measured by student scores on the 24-item posttest. A test of the hypothesis $H_0$: $\mu_1 - \mu_2$ was performed on the test score means. Analysis of covariance using pretest score, background, previous biology participation, post-graduation plans, and attitude toward agriculture as multiple covariate measures was used to perform the analysis. Results of the analysis of covariance F test and the observed and adjusted means are shown in Table 4. The analysis of covariance F value of 25.58 was highly significant ($p < .01$), and therefore the hypothesis of no difference in overall achievement between treatment and control groups was rejected.

Table 4

ANCOVA Summary: Overall Achievement by Group Adjusted for Covariates

| Source of Variation | SS | df | MS | F |
|---|---|---|---|---|
| Covariates | 658.56 | 5 | 131.71 | 12.88* |
| Pretest score | 267.18 | 1 | 267.18 | 26.05* |
| Background | .08 | 1 | .08 | .01 |
| Previous biology | 38.25 | 1 | 38.25 | 3.73 |
| Post graduation plans | 4.74 | 1 | 4.74 | .46 |
| Attitude toward ag. | 20.56 | 1 | 20.56 | 2.00 |
| Curriculum Group | 262.30 | 1 | 262.30 | 25.58* |
| Residual | 933.20 | 91 | 10.26 | |
| Total | 1854.05 | 97 | 19.11 | |

*p < .01

| Mean Scores | $\bar{X}$ (observed) | $\bar{X}$ (adjusted) |
|---|---|---|
| Integrated Approach Group | 13.63 | 13.13 |
| Traditional Approach Group | 9.25 | 9.76 |

Applied biology achievement was measured by student scores on the subset of 10 "applicative" items within the 24-item posttest. Again, a test of the hypothesis $H_0$: $\mu_1 = \mu_2$ was performed, using the aforementioned variables as covariate measures. Results, along with observed and adjusted mean scores, are presented in Table 5. The ANCOVA F value of 9.00 was again highly significant ($p < .01$), and therefore the hypothesis of no difference in applied biology achievement between treatment and control groups was rejected.

## Analysis of Student Attitude Toward the Curricular Plan

Student attitude toward the curricular plan used was measured by a 20-item attitude instrument. As a preliminary analysis, correlation coefficients were calculated to determine which independent variables were most related to student attitude. Self-perceived interest in agriculture ($r = .56$), self-perceived interest in science ($r = .20$), and post-graduation plans ($r = .17$) were most significantly related to attitude, and were therefore used as covariate measures in the analysis of covariance F test for the hypothesis $H_0$: $\mu_1 = \mu_2$. Mean attitude scores and results of the analysis of covariance are presented in Table 6. The F value of 17.44 was highly significant ($p < .01$), and therefore the hypothesis of no difference in attitude toward the curricular approach used between treatment and control groups was rejected.

Table 5

ANCOVA Summary: Applied Biology Achievement by Group Adjusted for Covariates

| Source of Variation | SS | df | MS | F |
|---|---|---|---|---|
| Covariates | 74.35 | 5 | 14.87 | 4.87* |
| Pretest score | 38.41 | 1 | 38.41 | 12.58* |
| Background | .53 | 1 | .53 | .17 |
| Previous biology | 1.93 | 1 | 1.93 | .63 |
| Post graduation plans | 0.00 | 1 | 0.00 | .00 |
| Attitude toward ag. | 1.32 | 1 | 1.32 | .43 |
| Curriculum Group | 27.48 | 1 | 27.48 | 9.00* |
| Residual | 277.80 | 91 | 3.05 | |
| Total | 379.63 | 97 | 3.91 | |

*p < .01

| Mean Scores | $\bar{X}$ (observed) | $\bar{X}$ (adjusted) |
|---|---|---|
| Integrated Approach Group | 4.84 | 4.66 |
| Traditional Approach Group | 3.45 | 3.63 |

Table 6

ANCOVA Summary: Attitude Toward Curricular Approach by Group Adjusted for Covariates

| Source of Variation | SS | df | MS | F |
|---|---|---|---|---|
| Covariates | 2683.41 | 3 | 954.47 | 6.38* |
| Interest in ag. | 1466.89 | 1 | 1466.89 | 9.80* |
| Interest in science | 108.36 | 1 | 108.36 | .72 |
| Post graduation plans | 505.77 | 1 | 505.77 | 3.38 |
| Curriculum Group | 2611.50 | 1 | 2611.50 | 17.44* |
| Residual | 14823.71 | 99 | 149.73 | |
| Total | 20298.62 | 103 | 197.07 | |

*p < .01

| Mean Scores | $\bar{X}$ (observed) | $\bar{X}$ (adjusted) |
|---|---|---|
| Integrated Approach Group | 67.66 | 65.36 |
| Traditional Approach Group | 57.54 | 58.85 |

### Discussion of Results

Although the differences in mean scores between treatment and control groups were significant, both groups achieved failing scores. This was possibly due to the difficulty of the tests, the format of the tests, or the length of the tests. In addition, the F values indicated that the difference in overall achievement was much greater than the difference in applied biology achievement. This seems strange given the nature of the treatment. A possible explanation lies in the nature of the "applicative" items on the posttest. All ten of the "applicative" items were practical agricultural questions which, given adequate agricultural background, a student could answer correctly without the background knowledge of biological principles. Also, some items not included in the subset asked for "straight biology" knowledge. It is assumed that the treatment group students achieved many more correct answers on these items than did the control group, given their advantage. This would have inflated the differences in overall achievement.

## CONCLUSIONS AND RECOMMENDATIONS

### Conclusions

1. In the two problem areas selected, the integrated approach is superior to the traditional approach in producing higher overall achievement.
2. In the two problem areas selected, the integrated approach is superior to the traditional approach in producing higher applied biology achievement.
3. The integrated approach is especially beneficial for nonfarm students. This is especially important given the increasing proportion of nonfarm students populating vocational agriculture programs.
4. The integrated approach has a remediating effect for students with no previous high school biology.
5. The integrated approach makes instruction more interesting to students.

### Recommendations for Further Research

1. Expand the scope of the study to include other program areas such as horticulture and "urban" agriculture programs. This would serve to establish a basis for comparison of different types of agriculture programs, and the effectiveness of the integrated approach in each type.
2. Expand the duration of the study to include a semester, year, or multiple years of instruction. This would provide for more easily analyzable and generalizable results, and also for comparison of many different types of problem areas.
3. Compare achievement and attitudes of students taught using the integrated approach to those of students taught biology by traditional means. Studies of this nature could provide a rigid test of the academic rigor of agricultural education programs.
4. Expand to include other science areas such as physics, and the social sciences. This would provide strategy and rationale for more complete integration of agriculture and the sciences.
5. Develop and test instruments which measure achievement in applied

settings. Measuring knowledge of a subject being applied to another subject is extremely difficult, and considerable time and effort could and should be devoted to this area.

6. Studies should be conducted to ascertain and to facilitate the compatibility of integrated approaches with other paramount features of agriculture programs, most notably problem solving instruction, supervised occupational experience, and FFA.

7. Curricular plans and materials for using the integrated approach should be developed, tested, revised, and disseminated to teachers for use in local agriculture programs as soon as possible.

## Recommendations for Practice

1. Teacher education programs should concentrate on developing in future agriculture teachers the ability and skills necessary for integrating academic with agricultural instruction.
2. Teacher educators should work closely with teachers in the field to develop and disseminate strategies for using integrated approaches to teaching agriculture.
3. Teachers and teacher educators should collaborate with professionals in other disciplines (e.g. science education) to develop strategies for using integrated approaches.
4. Agricultural education policy should focus on new and emerging areas of endeavor such as applied academics and should make these areas top priorities for research and development.

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# EDUCATIONAL NEEDS OF URBAN AGRIBUSINESS EMPLOYEES

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## INTRODUCTION

In order to adequately plan and deliver effective adult education programs for persons interested in agriculture, it is necessary to determine the need for such programs. Information about programs of vocational agriculture designed to meet the needs of employees of agribusinesses was not readily available. If vocational agriculture programs are to provide adult education for this sector of the agricultural industry, it is important to first determine if needs exist. Therefore, the purpose of this study was to assess the perceptions of urban agribusiness employers regarding the need for education or training for employees they supervise.

## OBJECTIVES

The research objectives used to guide this study were to:

1. assess the educational/training needs of agribusiness employees as perceived by management/supervisory personnel in four sectors of the agricultural industry.

2. ascertain if differences exist in the educational/training needs of agribusiness employees as perceived by three levels of management/supervisory personnel.

3. ascertain if differences exist in the need for education/training of employees as perceived by management/supervisory personnel among four types of agribusinesses.

## RELATED LITERATURE

Adult education programs in agriculture historically concentrated on providing assistance to persons engaged in production agriculture. During the early 19th century, county fairs provided the greatest opportunity to exchange new ideas and technology related to farming. As a result of social and economic changes, the United States government enacted legislation which created land grant universities, experiment stations, the cooperative extension service, and vocational agriculture programs. The goal of such acts was to aid in developing and disseminating new technology which would enable farmers to become more efficient producers of agricultural products.

Since the turn of the century, the number of farmers in this country has declined to about 3 percent of the United States workforce.

Meanwhile, the number of persons employed in other sectors of the agricultural industry has increased to approximately 22 percent of the workforce (AgFocus, 1986). However, adult education offerings through programs of agriculture in public schools have not reflected this shift in agricultural employment.

In November, 1985, the Missouri Department of Elementary and Secondary Education sponsored a conference titled "Shaping the Future of Agricultural Education." More than 200 educators, politicians, farmers, and agribusiness persons were convened to discuss the future of agricultural education in Missouri. Recommendations resulting from the conference suggested that (Missouri Department of Elementary and Secondary Education, 1986):

1. Agricultural education should be a program for all students from kindergarten to adult.

2. The present strengths of agricultural education programs should be maintained, but should be broadened, to meet the future needs of students and the agricultural industry.

3. The scope of adult education in agriculture should be broadened to include full and part-time farmers, small farm operators, speciality crop and livestock producers, retired and displaced farmers, persons with avocational interests, and persons employed in agriculture outside of production.

Needs assessment studies in agricultural education have been conducted; however, needs assessment research in the area of agribusiness was limited. Anderson (1982) surveyed agribusiness employers and employees in two Ohio counties for the purpose of developing a paradigm to determine the perceived educational needs of agribusiness employees. Anderson found the majority of agribusiness employers and employees expressed a need for additional education yet had never participated in adult education or been asked about their educational needs. Employers revealed that the best delivery system for professional employees was colleges or universities. It was reported that employers could fulfill the educational/training needs of skilled employees and that high schools were the most appropriate delivery system for unskilled employees. The researchers indicated that additional research should be conducted with larger agribusinesses to determine the relationship of the high perception of educational need with size of business.

In another study completed in Ohio, Holton (1986) surveyed agribusiness employees to determine the status of adult education offerings in agriculture by the Ohio Cooperative Extension Service, public institutions (high schools, technical institutes, and The Ohio State University) and agencies related to agribusinesses. Findings from this study revealed that agribusiness employers had participated in adult education programs offered by the Ohio Cooperative Extension Service, product line companies were the most important agency which should provide educational services to agribusiness employers and employees, and agribusiness employees received additional training on-the-job and through specialized schools.

## PROCEDURES

The population for the study consisted of agribusinesses which were members of the Food and Agriculture Division of the Greater Kansas City Area Chamber of Commerce. Each of the member agribusinesses were classified into sectors outlined by Shelhamer, Bishop, and Douglas (1984). One agribusiness was randomly selected from the agricultural supplies and services, agricultural mechanics, agricultural products, and horticulture sectors.

A survey instrument was developed utilizing previous research and a Likert-type, agree/disagree response scale. The instrument was examined by a panel of experts to verify its content validity. A pilot test of the instrument and data collection procedures was also completed. The reliability of the instrument was estimated by calculating a Cronbach's alpha coefficient. The data for the study yielded a reliability coefficient of .91.

Data collection instruments were hand-delivered to a contact person identified at each selected agribusiness location. Instruments were collected from each contact person after one follow-up was made.

A check for non-response bias was conducted by comparing the responses of early and late respondents as described by Barrick, Miller, Van Tilburg, and Warmbrod (1985). No significant differences were identified in the responses to the dependent variables. Therefore, the data collected were considered to be representative of the sample.

The data were summarized and analyzed using both descriptive and inferential statistical techniques. The following null hypotheses were formulated to test research questions two and three:

$Ho_1$: There is no significant difference in the need for education/training of employees as perceived among the three levels of management/supervisory personnel.

$Ho_2$: There is no significant difference in the need for education/training of employees as perceived by management/supervisory personnel among the four agribusinesses.

The hypotheses were tested at the .05 alpha level.

## RESULTS

A total of 65 of a possible 72 managers/supervisors responded to the questionnaire for an overall response rate of 90 percent. The number of management/supervisory personnel in each business ranged from 10 in the horticulture sector to 26 in the agricultural supplies and services sector. The number of employees at each business site ranged from 43 in the agricultural products sector to 135 in the agricultural supplies and services sector. A total of 11 females and 54 males were in management/supervisory positions. The educational level of the managers/supervisors included two individuals with a high school diploma, 19 individuals with some college, four individuals with two-year degrees, 20 individuals with four-year degrees, 11 individuals with some graduate work, 6 individuals with masters degrees, and 3 individuals with doctoral degrees. A majority (44 of 65) of the individuals had not been involved in any vocational education program.

The number of individuals in each management level included 15 top managers, 34 middle managers, and 16 supervisors. There were no females employed as top managers, five females employed as middle managers, and six females employed as supervisors. The number of employees supervised by top management personnel ranged from eight individuals with responsibility for five or less employees to four individuals with responsibility for 16 or more employees. Middle managers ranged from 20 individuals with responsibility for five or less employees to five individuals with responsibility for 16 or more employees. Supervisors ranged from 13 individuals with responsibility for five or less employees to no individuals with responsibility for more than 15 employees.

The first research question of this study was developed to assess the educational/training needs of agribusiness employees as perceived by management/supervisory personnel in four sectors of the agricultural industry. Means and standard deviations were computed for the factors included in the questionnaire and are reported in Table 1. Mean scores ranged from a high of 3.15 for the item "Jobs performed by employees are becoming more complex," to 2.49 for the item "Greater knowledge of the role our business plays in the agricultural industry would improve the job performance of employees I supervise." Managers/supervisors were in general agreement on the factors relating to the need for education/training as indicated by mean scores above the midpoint (2.5) of the scale for 10 of the 11 items.

Table 1

Order of Factors Related to the Need for Education/Training of Agribusiness Employees

| Rank | Factor | $\bar{X}^1$ (N=65) | SD |
|---|---|---|---|
| 1 | Jobs are becoming more complex | 3.15 | 0.75 |
| 2T | Increases the likelihood of job advancement | 2.89 | 0.56 |
| 2T | Results in greater job security | 2.89 | 0.61 |
| 4 | Encouraged to participate by manager/supervisor | 2.86 | 0.81 |
| 5T | Additional career counseling needed | 2.85 | 0.51 |
| 5T | Greater knowledge of technological advances needed | 2.85 | 0.61 |
| 7 | Education/training should be offered at the workplace | 2.81 | 0.63 |
| 8 | Participation in education/training should be rewarded with salary increases | 2.71 | 0.58 |
| 9 | Additional technical agricultural knowledge needed | 2.65 | 0.74 |
| 10 | Greater knowledge of the agricultural industry | 2.62 | 0.72 |
| 11 | Greater knowledge of the role of the business | 2.49 | 0.59 |

[1] Responses were coded: 1 = strongly disagree; 2 = disagree; 3 = agree; 4 = strongly agree.

Means and standard deviations were also computed for items included in the questionnaire which asked for responses from management/supervisory personnel concerning educational/training topics needed by employees. Table 2 contains the mean scores for topics above 3.0 and below 2.0 on the four-point response scale as perceived by management/supervisory personnel. Twenty-two of the 43 topics were above the scale midpoint of 2.5. Managers/supervisors indicated the strongest agreement with the need for education/training for employees they supervise in the areas of human relations, employee leadership, employee motivation, and decision making.

Manager/supervisors indicated the least need for education/training for employees they supervise in the areas of crop production and integrated pest management.

Table 2

Manager/Supervisor Perceptions of the Educational/Training Topic Needs of Agribusiness Employees Above 3.0 and Below 2.0

| Rank | Topic | $\bar{X}^1$ (N=65) | SD |
|---|---|---|---|
| Above 3.0 | | | |
| 1 | Human relations | 3.41 | 0.61 |
| 2 | Employee leadership | 3.18 | 0.58 |
| 3 | Employee motivation | 3.12 | 0.70 |
| 4 | Decision making | 3.11 | 0.47 |
| Below 2.0 | | | |
| 42 | Integrated pest management | 1.93 | 0.66 |
| 43 | Crop production | 1.86 | 0.56 |

[1] Responses were coded: 1 = strongly disagree; 2 = disagree; 3 = agree; 4 = strongly agree.

The first hypothesis was developed to ascertain if significant differences existed in the education/training needs of agribusiness employees as perceived by three levels of management/supervisory personnel. The results of the analysis of variance procedure, as reported in Table 3, did not reveal any significant differences in the perceived need for education/training of employees among the three levels of management/supervisory personnel. The hypothesis was not rejected.

The second hypothesis was developed to ascertain if significant differences existed in the need for education/training of employees as perceived by management/supervisory personnel among the four types of agribusinesses. The results of the analysis of variance procedures, as reported in Table 4, revealed that there were significant differences among the four agribusinesses and the hypothesis was rejected.

Four items relating to the perceived need for education/training of employees as perceived by management/supervisory personnel among the four types of agribusinesses were significant at the .05 level. Items which produced significantly different responses were: (a) "Employees who participate in adult education/training programs to improve job performance skills will have greater job security;" (b) "A greater knowledge of the agricultural industry would improve the job performance of employees I supervise;" (c) "Employees I supervise need additional technical agricultural knowledge;" and (d) "Jobs performed by employees I supervise are becoming more complex."

Table 3

Comparison of Management/Supervisor Perceptions of Factors Related to Educational/Training Needs of Agribusiness Employees

| Factor | Management level | | | | |
|---|---|---|---|---|---|
| | T[1] | M | S | | |
| | X[2] (n=15) | X (n=34) | X (n=16) | F | p |
| Jobs are becoming more complex | 3.26 | 3.21 | 2.94 | 0.90 | .411 |
| Increases the likelihood of job advancement | 2.93 | 2.94 | 2.75 | 0.67 | .514 |
| Participation results in greater job security | 3.06 | 2.85 | 2.81 | 0.80 | .454 |
| Encouraged to participate by manager/supervisor | 2.93 | 2.91 | 2.68 | 0.49 | .616 |
| Additional career counseling needed | 2.73 | 2.88 | 2.88 | 0.48 | .623 |
| Greater knowledge of technological advances | 3.00 | 2.85 | 2.68 | 0.99 | .376 |
| Education/training should be offered at the workplace | 2.60 | 2.85 | 2.94 | 1.23 | .300 |
| Participation should be rewarded with salary increases | 2.66 | 2.67 | 2.81 | 0.34 | .712 |
| Additional technical agricultural knowledge needed | 2.66 | 2.68 | 2.65 | 0.13 | .895 |
| Greater knowledge of agricultural industry | 2.66 | 2.65 | 2.50 | 0.27 | .766 |
| Greater knowledge of the role of the business | 2.53 | 2.47 | 2.50 | 0.06 | .943 |

[1] Management levels are: T = top management; M = middle management; S = supervisor.

[2] Responses were coded: 1 = strongly disagree; 2 = disagree; 3 = agree; 4 = strongly agree.

Table 4

Comparison of Management/Supervisor Perceptions of Factors Related to the Need for Education/Training by Business Sector

| | Business sector | | | | | |
|---|---|---|---|---|---|---|
| | P[1] | S | H | M | | |
| Factor | $\bar{X}$[2] (n=10) | $\bar{X}$ (n=22) | $\bar{X}$ (n=10) | $\bar{X}$ (n=23) | *F* | *p* |
| Jobs becoming more complex | 3.00BC | 3.33AB | 3.70A | 2.82C | 4.18 | .009 |
| Increases the likelihood of job advancement | 2.90 | 2.74 | 2.80 | 2.80 | 1.62 | .194 |
| Participation results in greater job security | 3.00A[3] | 2.91A | 2.30B | 3.09A | 4.64 | .006 |
| Encouraged to participate by manager/supervisor | 2.70 | 3.00 | 2.30 | 3.05 | 2.52 | .067 |
| Additional career counseling needed | 3.10 | 2.83 | 2.70 | 2.82 | 1.15 | .335 |
| Additional technical agriculture knowledge needed | 3.00A | 2.22B | 3.00A | 2.77A | 5.19 | .003 |
| Education/training should be offered at the workplace | 2.50 | 2.83 | 3.00 | 2.86 | 1.16 | .333 |
| Participation should be rewarded with salary increases | 2.50 | 2.74 | 2.70 | 2.77 | 0.53 | .661 |
| Greater knowledge of technological advances | 2.60 | 2.78 | 2.90 | 3.00 | 1.04 | .359 |
| Greater knowledge of agricultural industry | 3.00A | 2.30B | 2.90A | 2.64AB | 3.19 | .029 |
| Greater knowledge of the role of the business | 2.50 | 2.57 | 2.20 | 2.55 | 1.00 | .401 |

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[1] Business sectors are: P = agricultural products; S = agricultural supplies and services; H = horticulture; M = agricultural mechanics

[2] Responses were coded: 1 = strongly disagree; 2 = disagree; 3 = agree; 4 = strongly agree

[3] Different letters indicate significantly different means.

Respondents in the agricultural products, agricultural supplies and services, and agricultural mechanics sectors tended to agree with the statement that participation in education/training programs would result in greater job security while respondents in the horticulture sector tended to disagree.

Respondents in the agricultural products, horticulture, and agricultural mechanics sectors agreed with the statement that additional technical agricultural knowledge was needed by their employees while respondents in the agricultural supplies and services sector disagreed.

Respondents in the agricultural supplies and services sector also disagreed that a greater knowledge of the agricultural industry would improve the job performance skills of the employees they supervised. This perception was significantly different from respondents in agricultural products and horticulture sectors. The perceptions of respondents in the agricultural mechanics sector were not significantly different from any of the other agribusiness sectors surveyed.

Respondents in horticulture agreed that jobs performed by the employees they supervised were becoming more complex. This perception was significantly different from the perceptions of respondents in the agricultural products and agricultural mechanics sectors. The perceptions of respondents in the agricultural supplies and services sector were not significantly different from those in the horticulture or agricultural products sectors, but were found to differ from agricultural mechanics sector respondents.

## CONCLUSIONS

To the extent that the findings are valid and reliable, the following conclusions were drawn:

1. A need exists for educational/training programs for urban agribusiness employees.

2. Participation in educational/training programs would improve the job performance skills of agribusiness employees.

3. Educational/training programs should be developed to address needs which are common to employees in the various agribusiness sectors.

4. Educational/training programs should be developed for agribusiness employees to meet unique, technical needs of individual businesses.

## RECOMMENDATIONS

A need exists to develop educational/training programs for urban agribusiness employees. Individuals who are responsible for planning and conducting adult agriculture programs should work cooperatively with agribusinesses to develop programs to meet needs which are specific to each agribusiness sector. Employees from all levels should be encouraged to participate in educational/training programs to improve their job performance skills.

The next step in the process of planning and conducting adult education/training programs for urban agribusiness employees requires that a dialogue be initiated among agricultural educators and agribusiness management personnel. Agricultural educators should provide the leadership necessary to assist in fulfilling the educational/training needs of urban agribusiness employees.

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# THE EFFECT OF ATTENDANCE AT A JOINT VOCATIONAL SCHOOL ON MOTIVATION TOWARD SCHOOL OF VOCATIONAL AGRICULTURE STUDENTS

Lowell Hedges, Emmalou Van Tilburg and Michael Newman

A Critique by
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This study is assumed to be part of a larger study of student motivation. While it is understood that it was a part of a larger study, the following remarks are based on the study as reported. The authors are to be commended for the worthiness of their endeavors; studies of the motivation of vocational students toward school are certainly needed. The research report is a well written, forthright presentation of the research.

The study, as reported, was a descriptive census study of, what the authors describe as, a "population" of 400 sophomore students enrolled in four vocational schools in northwest Ohio. They wished to describe this population on a number of characteristics and sought to determine if relationships existed between selected characteristics. Several questions arise as one reads the report. Further clarification of each would increase the readability of the report.

The title was somewhat misleading as it suggested a study of the effects of attendance in a particular educational delivery system on student motivation. This leads one to believe that type of institution was under study, at least by comparison with others. Such was not the case as the entire population was drawn from the same system and no mention of the system was made in the specific research objectives. The study was, in reality, a study of the level of motivation of students attending four JVSs and the relationship of motivation to selected demographics.

A logical introduction presented the authors' theoretical bases for the study. However, only one reference was cited on the subject of motivation. The objectives stated that the population would be described on "independent and dependent variables." These terms imply manipulation and control (see Borg & Gall, p. 633, for example), generally not done in census studies. Since the population was not segregated using any predetermined grouping system, this is innappropriate. Further, in the "procedures" section, the respondents in the study are repeatedly referred to as the "sample."

Data for the "dependent" variables were collected utilizing a tested instrument, the validity and reliability of which was reported. Data for the "independent variables" were collected on what the researchers call a "supplemental sheet." These data, as described in the "results" section, were teacher ratings of student characteristics and as such should have also been collected on a tested instrument. Procedures for establishing the validity and reliability of this instrument were not reported.

Analyses included the appropriate descriptive statistics and correlations between specific charactistics. T-tests and chi squares were used, as the authors report, to "compare groups on selected variables." However, no description of any "groups" was included. The reader is left to ask, "What groups?" Further, the chi square (and related procedures) is an inferrential statistic to determine if obtained proportions differ from theoretically derived expected proportions, and is inappropriate in census studies (see Minium & Clarke, p. 367, for example).

Other questions include: What is "medium income?" Why was a 10-point Likert scale used on the teacher rating instrument? Does this procedure increase the precision of the measure?

The paper concludes that only gender among the demographics is related to student motivation, and that teachers are not good evaluators of student motivation.

# INTEGRATING BIOLOGICAL PRINCIPLES WITH SECONDARY AGRICULTURE INSTRUCTION

Chris Roegge and Earl Russell

A Critique by
George Wardlow, Assistant Professor
University of Minnesota

This study has great potential in effecting change in agricultural education. The authors deserve much praise for their study in particular and for their acknowledgement in general of the current status of vocational agriculture in the public schools. The study was well concieved and well conducted. Particular attention should be paid to the researchers' excellent use of a positivistic experimental design in the research.

A well documented introduction developed the theoretical basis for the purpose and objectives. The procedures were well explained, including the population and sample, the development of the treatment and control materials, and the development of the instruments. The results were well organized and presented the findings in both statistical and text form. The conclusions were logically derived from the findings.

Several points of clarification might aid the reader of the research report. On what bases were the biology treatments and subsequent evaluation items determined by the panels to be valid? A portion of this question would relate to the level of the content and its relation to previously learned biological principles. Was any provision made for the effect of the teachers? Using different individuals to administer the treatments and the controls presents several problems inherent in quasi-experimental designs. In this case "teacher ability" and knowledge in biology could be a factor. Although specific material was used from which to teach, teachers often explain concepts in their own words based upon their own understandings. Were teachers tested? How was this problem controlled? One would ask how the difference in the amount of previous coursework in biology held by the groups affected the findings. What is a pratical interpretation of this?

Once again, the researchers are to be commended for the significance of the study and the quality of the research report.

# EDUCATIONAL NEEDS OF URBAN AGRIBUSINESS EMPLOYEES

Steven Harbstreit, Bob Stewart and Robert Birkenholz

A Critique by
George Wardlow, Assistant Professor
University of Minnesota

The study of educational needs of urban agribusiness employees is a very timely and necessary study. Too often the profession of agricultural education has overlooked this segment of the agricultural industry. The authors are to be commended for their identification of this need.

The study was written in a logical format. A sound introductory rationale lead to the research objectives which centered around the identification of need for educational programs by agribusiness employees. The objectives were clearly stated and supported by the "literature" section. The procedures revealed that the study was discriptive and included the testing of two hypotheses.

Several questions regarding the conceptualization of the research and the procedures used arise as one reads the paper. The title indicated an inquiry of the needs of urban employees, while the objectives indicated that types of agribusiness rather than geographic location would be investigated. The literature section developed an interesting rationale by making several statements; however, it was supported by few specific citations. In fact, the bibliography is rather limited.

The "procedures" section indicates that appropriate procedures were likely followed, however, further explanation of several points would aid in the replicability of the study. For example, the subject selection procedure needs clarification. How were the businesses and the subjects within each business selected? Were subjects representatives of only four businesses within the Kansas City area? If so, what are the practical implications of attempting to generalize from such a limited number of business units? Three levels of personnel were studied, but no explanation of the three levels was given.

Many consumers of research are "table only" readers while others are "text only" readers; one should be able to determine the findings by referring to either form independent of the other. Table 4 reported results of an analysis of variance to determine differences on selected items between subjects by types of business. Means were reported without standard deviations (as in Table 3) and the F-statistic and probability levels were reported. Significant differences between means were indicated by a lettering system which could be greatly clarified. This reader first read the table and then the supporting text, arriving at different conclusions. Further, the related text did not report numeric values.

The paper made four statements of conclusion. Each was based upon the findings, but should be prefaced (as should the title) with the notation that they are in the opinion of the management level personnel from the four businesses included in the study and not the employees themselves. In summary, the researchers are to be commended for a much needed study. The results should add to the knowledge base and effect change within the profession.

# FACTORS INFLUENCING THE OCCURRENCE OF ADULT AGRICULTURAL EDUCATION PROGRAMS

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## INTRODUCTION

A question often posed is: Why should educational programs for adults be a part of vocational agriculture programs offered by high schools? Agricultural educators have addressed this question, and reasons have been reiterated for offering adult agricultural education programs (Hamlin, 1949; Hamonds, 1950; Morgan et al., 1976; Phipps, 1954; Newcomb et al., 1986). Major reasons presented for offering courses in agriculture for adults include (1) farmers and other persons in agriculture respond to adult courses if they have an opportunity to plan and manage the courses, (2) farm efficiency can be materially increased through adult education, (3) adults involved directly with the school or profiting directly from it are more likely to support the school, and (4) teaching adults is good for high school teachers of vocational agriculture.

Among the several factors that could influence whether or not a school offers an adult agricultural program are the attitudes and beliefs of superintendents, principals, and vocational agriculture instructors. The support of superintendents and local administrators for an adult program and their attitudes about and understanding of adult education have been documented as being associated with a school's offering or not offering an adult education program (Ekstrom and McClelland, 1952; Phipps, 1980; Loreen, 1958; Adelaine and Foster, 1987).

Proponents of adult agricultural education programs assert that teachers make or break programs for adults (Minich, 1956; Bender et al., 1972; Forsythe and Reece, 1981). It has been stated that "it is the vocational agriculture teacher who holds the critical role in determining whether a total program is offered or merely lip service is given to it" (Richardson, 1983) and that "a successful, quality young farmer/adult program depends directly upon the attitude, willingness to commit the necessary time, and dedication of the local vocational agriculture instructor" (Cavey, 1983).

Much of the research in adult education concerns the participation of adults in organized instruction. This research has emphasized situational and psychosocial barriers to participation, often overlooking institutional barriers. Research in adult education in agriculture fits this description also. Particularly lacking in agricultural education research is investigation of the impact of institutional barriers on whether or not a secondary school offering a vocational agriculture program also provides agricultural education programs for adults.

## PURPOSES AND OBJECTIVES

One purpose of the research reported in this paper was to study the institutional factors that may influence the occurrence of adult agricultural programs in secondary schools where vocational agriculture is taught. The specific objectives were to investigate the relationships between the occurrence of an adult agricultural education program and the following institutional variables: 1) the perceptions of superintendents, principals, and secondary vocational agriculture instructors toward the benefit, need, funding, and operation of an adult agricultural education program; 2) the perceptions of vocational agriculture instructors toward external and personal factors that influence whether or not they teach adults; 3) recent adult education experiences of superintendents, principals, and secondary vocational agricultural instructors; 4) the number of vocational agriculture instructors in the secondary school; 5) the provisions of local school policy pertaining to the adult agricultural education program; 6) the existence in the school of a Young Farmer program and the characteristics of the program; 7) the scope and nature of the secondary vocational agricultural education program in the school; and 8) the number of farms in the county.

## PROCEDURES

The population was all secondary schools in Ohio that offered vocational agriculture programs in agricultural production or farm business management during 1985-86 - a total of 260 schools. The schools were stratified into two groups: those receiving reimbursement from the Ohio Department of Education for adult programs in production agriculture or farm management (Adult Program group), and schools that did not claim or receive reimbursement for adult agricultural education programs (No Adult Program group). Since data were collected during the 1986-87 school year, schools constituting the frame were those in which the superintendent, principal, and vocational agriculture instructor(s) in 1986-87 were the same individuals as in 1985-86. Consequently, the frame consisted of 178 schools - 89 in the Adult Program group and 89 in the No Adult Program group. A stratified random sample of 42 schools from each group was drawn.

Data were obtained from researcher-designed questionnaires and from official records in the Ohio Department of Education. Content validity of the questionnaires was established by a panel of experts. The questionnaires were pilot tested with a group of superintendents, principals, and vocational agriculture instructors in schools not included in the sample. Cronbach's alpha coefficients for the attitude scale items were .87 for superintendents, .81 for principals, and .76 for vocational agriculture instructors.

Data from superintendents, principals, and vocational agriculture instructors were collected by mail questionnaire using procedures suggested by Dillman (1978). Of the 252 questionnaires mailed, 81 percent were returned. Since the unit of analysis is a school, complete data for a school required that usable questionnaires be returned from the superintendent, principal, and at least one vocational agriculture instructor in the school. Complete data, including usable questionnaires and data from records in the Ohio Department of Education, were available for 26 of the 42 schools in the Adult Program group and 20 of the 42 schools in the No Adult Program group.

For responses to questionnaire items, early, middle, and late respondents were compared with no significant differences between groups. Responses to the questionnaire of respondents from complete-unit schools (superintendent, principal, and vocational agriculture instructor responded) were compared also to respondents from schools where one or more of the individuals did not respond. This analysis did not reveal significant differences in the responses of superintendents, principals, or instructors between complete-unit schools and noncomplete-unit schools. Also, complete-unit schools were compared to noncomplete-unit schools on data collected from Ohio Department of Education records. These comparisons indicated no significant differences between the schools used in the analysis (complete-unit schools) and schools not used in the analysis (noncomplete-unit schools). The analyses reported in this paragraph indicate that nonresponse to the mail questionnaire is not a major threat to the external validity of the study.

## RESULTS

Stepwise discriminant analysis was used to identify the variables investigated in the study that distinguish Adult Program schools from No Adult Program schools. Initially, stepwise discriminant analyses were performed on the following groups of variables: attitudes of superintendents, principals, and instructors; demographic characteristics of superintendents, principals, and instructors; young farmer program; and nature and size of the school's vocational agriculture program for secondary students. From each of these groups of variables, the variables that discriminate Adult Program schools from No Adult Program schools were combined with the additional variables number of vocational agriculture instructors, policy for adult education, and number of farms in the county. The final discriminate analysis used all of the variables to identify the characteristics that differentiate schools that offer adult agricultural education programs from schools that do not.

### Attitudes of Superintendents, Principals, and Instructors

The group of attitude variables included 14 variables: attitudes of superintendents, principals, and instructors about benefits, need, funding, and operation of adult programs and the attitudes of instructors about external factors and personal factors that influence them to teach adults. Three of the 14 variables differentiate Adult Program schools from No Adult Program schools. Instructors in Adult Program schools indicated more strongly that adults should not pay fees for adult courses than instructors in No Adult Program schools. Both instructors and principals in Adult Program schools tended to have higher operation domain scores than did instructors in No Adult Program schools. Higher scores on the operation domain scale indicate that instructors and principals believe that vocational agriculture teachers are competent to teach adults, that instructors should teach adults, and that vocational agriculture teachers have time to teach adults. All other variables in this group of 14 did not contribute significantly to the discrimination between the two groups of schools.

## Demographic Variables

Eight demographic characteristics of superintendents, principals, and vocational agriculture instructors were investigated. The variables were whether or not superintendents, principals, and instructors had experience in teaching adults during the past three years, whether they had received instruction in teaching or administering adult education programs during the past three years, the number of years instructors had taught vocational agriculture, and the number of years vocational agriculture instructors had taught adults. Four of these variables were found to discriminate Adult Program schools from No Adult Program schools.

A higher percentage of principals in schools with an adult program had received instruction in teaching or administering adult education programs during the past three years than was the case for principals in schools without an adult program. A higher percentage of the vocational agriculture instructors in the Adult Program schools had taught adults within the past three years than instructors in the No Adult Program schools. Also, instructors in schools offering adult courses have a higher average number of years teaching adults and a lower average number of years teaching vocational agriculture when compared to instructors in schools that did not offer adult courses.

## Young Farmer Program

Both variables comprising the young farmer group differentiate Adult Program schools from No Adult Program schools. A higher percentage of the schools with adult programs reported the use of the adult program as the young farmer educational program. No Adult Program schools had a higher percentage of schools with a YF program that were not claimed as an adult program for reimbursement (6 of 20 schools) than Adult Program Schools (2 of 16 schools).

## Scope and Nature of Secondary School Program

Three variables described the scope and nature of the high school vocational agriculture program in the schools. These variables were enrollment in vocational agriculture, average number of supervised occupational experience instructional visits per student, and the level of activity of the school's FFA chapter. Only one of the three variables differentiates Adult Program schools from No Adult Program schools. Schools with adult programs, when compared to schools without adult programs, tend to have a higher average number of supervised occupational experience instructional visits per student. The number of high school students enrolled in vocational agriculture and the level of activity of the FFA chapter do not differentiate Adult Program schools from No Adult Program schools.

## Comparison of Adult Program Schools With No Adult Program Schools

In addition to the 10 variables identified above that discriminate Adult Program schools from No Adult Program schools, three additional variables were entered into the final stepwise discriminant analysis to identify what variables differentiate the two groups of schools. The three additional variables were number of vocational agriculture instructors in the school, number of farms in the county, and a policy index indicating whether there is district or school policy about adult education, whether policy speaks specifically about vocational agriculture instructors teaching adults, whether policy for adult education is written or unwritten, and the degree of agreement among superintendents, principals, and instructors about district and school policy for adult education.

From the list of 13 possible discriminating variables, the discriminant function resulting from stepwise discriminant analysis included eight variables that discriminate Adult Program schools from No Adult Program schools (Table 1). The discriminant function is statistically significant (Wilks' lambda = .331; $p < .001$) and 91 percent of the schools are classified correctly by the discriminant function.

Adult Program schools, when compared to No Adult Program schools, tended to (Table 2):

- be more likely to use the young farmer program as the adult agricultural program for which reimbursement was claimed from the Ohio Department of Education;
- have, in a higher percentage of cases, vocational agriculture instructors who had taught adults within the past three years;
- have, in a higher percentage of cases, principals who had received instruction in teaching or administering adult education programs within the past three years;
- have vocational agriculture instructors who had a higher average number of years teaching adults; and
- have higher policy index scores indicating to a greater extent the existence of district and school policy about adult education and a greater degree of agreement among superintendents, principals, and vocational agriculture instructors about the existence and nature of district and school policy for adult education.

No Adult Program schools, when compared to Adult Programs schools, tended to (Table 2):

- have a higher percentage of young farmer programs not claimed as the reimbursed adult program;
- have vocational agriculture instructors who indicated more strongly that adults should pay fees for adult agricultural education programs; and
- have a higher number of high school vocational agriculture instructors per school.

## CONCLUSIONS AND RECOMMENDATIONS

The following is concluded about the influence of certain factors on whether or not high schools offering vocational agriculture in Ohio also offer an adult education program in agriculture for which they claim reimbursement from the Ohio Department of Education.

- Vocational agriculture instructors are important in a school's decision to offer or not offer an adult education program. It is concluded that the attitudes of instructors, particularly their attitude toward the adults' role in funding adult programs, the instructor's recent experience in teaching adults, and the number of years they have taught adults are particularly important in differentiating schools offering adult education programs from schools that do not.

- High school principals are also important. From this research, it is concluded that schools offering adult education programs are more likely to be staffed by principals who have recently received instruction about adult educaiton.

- Closely related to the influence of instructors and principals is the extent and nature of policy about adult education as a function of the school. The more explicit policy there is in a school and the greater the agreement between administrators and instructors about this policy the more likely the school is to offer adult courses.

- If a school offers a young farmer program, the school usually claims that program as the adult education program for which reimbursement is received from the Ohio Department of Education.

- Contrary to what might be expected, the research revealed that schools offering adult programs have fewer vocational agriculture instructors per school than schools that do not offer an adult program. This conclusion is consistent with the finding that the nature and scope of the high school vocational agriculture program in the school is not a significant factor in differentiating schools that offer adult programs.

These conclusions lead to the following recommendations. In Ohio, state department of education personnel and teacher educators should be cognizant of the following in designing strategies and activities to improve and expand the offering of adult education in agriculture by high schools that provide vocational agriculture programs.

- When working with schools regarding adult education, it is important that school administrators, as well as vocational agriculture instructors, be the focus of consultation and advisement. Not only are the attitudes of principals and instructors important in the decision-making process, but both the existence and explicitness of policy regarding adult education as a function of the school are important in influencing whether or not an adult program is offered.

- The research confirms that the attitude, competence, and experience of vocational agriculture instructors in teaching adults are important in determining whether or not adult education is a part of the school's vocational agriculture program. Consequently, preservice and inservice instruction and supervision specific to planning, conducting, and evaluating adult education programs are essential if instructors are to acquire and demonstrate the competence and commitment required to teach adults.

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## TABLE 1

## SUMMARY DATA FOR DISCRIMINANT FUNCTION

| Discriminating Variables | Standardized Canonical Coefficients | Structure Coefficients |
|---|---|---|
| Adult Program Is the YF Program | .893 | .501 |
| Have Young Farmer Program | -.817 | .232 |
| Instructor Taught Adults | .709 | .432 |
| Principal Received Instruction | .423 | .090 |
| Years Instructor Taught Adults | .374 | .393 |
| Instructor Attitude: Funding | -.400 | -.280 |
| Policy Index | .327 | .295 |
| Number Vo-Ag Instructors | -.389 | -.109 |

Eigenvalue = 2.02; Canonical correlation = .82
Wilks' lambda = .331 ($p<.001$)

| Group | Number of Cases | Predicted Group Membership Group 1 | Predicted Group Membership Group 2 |
|---|---|---|---|
| 1 Adult Program | 26 | 24<br>92.3% | 2<br>7.7% |
| 2 No Adult Program | 20 | 2<br>10.0% | 18<br>90.0% |

Percent cases correctly classified = 91.3%

## TABLE 2

## CHARACTERISTICS OF ADULT PROGRAM SCHOOLS AND NO ADULT PROGRAMS SCHOOLS ON DISCRIMINATING VARIABLES

| Variable | Adult Program (n=26) | No Adult Program (n=20) |
|---|---|---|
| YF Program is the Reimbursed Adult Education Program | 53.8% | 0.0% |
| YF Program Not Claimed as Reimbursed Adult Program | 12.5% | 30.0% |
| Instructor Taught Adults Last Three Years | 100.0% | 60.0% |
| Principal Received Instruction About Adults Last Three Years | 19.2% | 10.0% |
| Years Instructors Have Taught Adults (Mean) | 13.0 | 5.5 |
| Instructor Attitude: Funding (Mean Score[a]) | 4.9 | 6.1 |
| Policy Index (Mean Score[b]) | 3.54 | 1.75 |
| Number Vo-Ag Instructors Per School (Mean) | 1.23 | 1.40 |

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[a] Higher scores indicate that adults enrolled should pay fees. Minimum possible score = 2; Maximum possible score = 10.

[b] Higher scores indicate more explicit district and school policy for adult education and a higher degree of agreement among superintendents, principals, and instructors about policy. Minimun possible score = 1; maximum possible score = 7.

# IMPROVEMENTS NEEDED IN YOUNG FARMER AND YOUNG FARM WIVES ORGANIZATIONS: MEMBERS' PERCEPTIONS

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## INTRODUCTION

Two of the enduring and active groups engaged in meeting the educational needs of young people in agriculture have been the organizations for young farmers and young farm wives. Participants in these organizations have been members of a local chartered chapter, which in turn has affiliated with a state association. There has been no formal equivalent national organization, although a National Institute is held annually in December to bring together members from the state associations.

The Ohio Young Farmers Association (OYFA) totals approximately 1500 members in 88 local chapters. In 1986, there were about 500 members in 32 local chapters of the Ohio Young Farm Wives Association (OYFWA). At the state level, a magazine is published, an annual conference is held, an annual tour is conducted, a weekend camp program is sponsored, and state-level activities are planned and conducted by officers under the guidance of an Executive Vice President-Treasurer.

The primary intent of the organization, at all levels, has been educational in nature. The ultimate goal of the organizations has been to improve the lives of the farmers and their families. Chapters began being actively chartered in the late sixties and early seventies in most states, and state associations simultaneously began to be formed.

Since the conception and formation of these organizations, the nature of agriculture and of education has undergone some vividly publicized developments in economics, demographics, and sociology. Are these organizations in need of improvement? This question was the major problem addressed by this study. The study would utilize the perceptions of members, those in a good position to judge, to assess needed improvements. The results would have implications for the local chapters and the state association, and could be considered by other states for generalization or replication.

## PURPOSE AND OBJECTIVES

The specific objectives of the study were:

1. To describe selected characteristics (personal, family and business) of the members of the OYFA and the OYFWA.

2. To determine the improvements members perceived were needed in the organization.

3. To determine the relationship between the characteristics of members in each organization and their perceptions of needed improvements.

## PROCEDURES

Survey research methodology was employed in this investigation. Two populations were investigated with the first being the 1986-87 dues paying members of the OYFA, and the second being comprised of members of the OYFWA. The frame of the OYFA was obtained from the Ohio State Department of Education, Agricultural Education Service, with the population size of 1488. A membership roster was not available for the OYFWA, but a list of chapters was and a frame was constituted by writing each local affiliate and obtaining a list of members to produce a frame (N = 500). Frame and selection errors were thus limited to the extent possible.

Using the sampling formula of Krejcie and Morgan (1970), a sample size of 306 was needed for the OYFA and 226 for the OYFWA populations. Sampling error was thus controlled with a 95 percent confidence level and a five percent accuracy rate. The two populations were then stratified by district, and chapters were randomly selected until a proportionate sample was obtained from each district.

### Instrumentation

A researcher-developed questionnaire was used to gather the data for the study. Validity was established using a panel of experts who had been involved with the OYFA and OYFWA organizations or who were involved in scholarly activities related to adult education in agriculture. A pilot test was used to establish internal consistency reliability on the instrument. Perceptions of needed improvements were divided into three domains with reliability coefficients ranging from .64 to .77, which would be acceptable for this initial study (Nunnally, 1967). Measurement errors should, thus, have been minimized.

Perceptions of needed improvements in the three domains were assessed using a four-point Likert-type scale varying from strongly disagree (1) to strongly agree (4). Overall domain means could be calculated by averaging across the items, since the domains were shown to be internally consistent. To assist in negating response sets by respondents, some items were negatively worded and, thus, the values for those items were reversed to average for the domain.

### Data Collection

Data were collected using modifications of the Dillman (1978) techniques. The questionnaire was printed in booklet format and included in a packet sent to the subjects at each of the two rounds of mailings. The mailed packet included a questionnaire, cover letter, and a pre-addressed, stamped return envelope. To control nonresponse error, late respondents were assumed to be like the nonrespondents (Miller and Smith, 1983), and an ANOVA run between early and late respondents on each of the domains. No significant differences were found and the results were deemed generalizable to the samples and the populations.

A total of 240 usable questionnaires (36% from the OYFA and 56% from the OYFWA) comprised the data sample, with 252 being in the accepting (returning) sample, but 11 had incomplete mailing addresses and one respondent indicated she was not a member of OYFWA. Of this number, 114 (47%) were from OYFA members and 126 (53%) were from OYFWA members.

## Data Analysis

Data were coded and analyzed by the Statistical Package for the Social Sciences (SPSSx) program of the Instructional and Research Computer Center at The Ohio State University. Descriptive statistics and inferential statistics were used. Pearson product moment correlation coefficients and point biserial correlation coefficients were utilized as appropriate for the scale of measurement. Scatterplots were examined for linearity and homoscedasticity when using the Pearson calculation.

## RESULTS AND CONCLUSIONS

The typical OYFA member was 32 years of age, married, lived in a rural area, was a high school graduate, had children, was a full-time farmer, reported being active in chapter activities, and fell into a length of membership category of three to six years. Of those reporting off-farm employment, almost 80 percent were employed in agribusinesses. Only about six percent were in the 19-23 age group, and 11 percent were unmarried. Fifty-six percent reported some formal education beyond high school. About 60 percent reported farming 600 or more acres, and 12 percent under 100 acres. Only 60 percent had enrolled in vocational agriculture during high school, but 77 percent had been 4-H members, and had been a member of the OYFA for about three years.

The typical OYFWA member was 34 years of age, married, lived in a rural area, was a high school graduate, had children, and reported her occupation being a housewife with an off-farm occupation (44%) which was most often in a non-agriculturally related area. Over 51 percent had formal education beyond high school, and most described themselves as employed in professional and semi-professional occupations. Nearly 90 percent had children with a mode of one. The average length of membership in the OYFWA was about three years, only eight percent had taken vocational agriculture in high school, but nearly 80 percent had been 4-H members.

Examining the acquisition of agricultural information, the groups averaged contacting the vocational agriculture teacher two times per year, the Extension office three times per year, and agribusinesses nine times per year. To further assess the value of the information they received, respondents were requested to rate the value of the different sources of information they received (Table 1). The information received from the vocational agriculture teacher'would have been rated as somewhat valuable, with the highest ratings given to farm magazines.

The perceptions of improvements needed was divided into three domains: (1) local chapter, (2) participation by agribusiness, and (3) instruction. Outside of the domains, other statements were assessed and open-ended comments were solicited.

The domain for the members' perceptions of improvements needed at the local chapter level (M = 2.6), Table 2, would have been between the disagree and agree categories of the response scale. The most positively rated items, just above agreement, were related to yearly evaluations of the local program of activities, and the necessity for topics related to production agriculture in the meetings. The lowest rated items, near disagreement, were regarding off-season, day-long classes as a means of delivering instruction, and the need for more meetings per year.

Table 3 presented improvements members perceived as being needed to involve agribusinesses in the programs of the organizations. The domain mean was 3.0, agreement, with each item near that score. This substantiated their perception that speakers should be provided by agribusinesses, agribusinesses should be more involved with local chapters, and more agribusiness personnel should be members of the organizations. The paucity of membership from outside production agriculture has long been apparent. The organization may want to consider policies and procedures which would encourage participation by a broader representation of persons from across the agri-industry. The organizations may have educational and other opportunities to offer employees, managers and entrepreneurs in agriculture and such combination of farmers, farm wives and other agriculturalists could result in some very unique learning experiences and other benefits.

Improvements needed in instruction were addressed by the domain presented in Table 4. The overall domain mean of 2.6 would be midway between agreement and disagreement. The most agreeable item was related to increased awareness by vocational agriculture instructors of the opportunities and benefits of the organizations. The item related to frequency of home visits, four per year, received the greatest disagreement; the members did not believe four to be the appropriate number, but the visitation expectations of members is still unknown and should be further investigated. Members tended to agree that state supervisors should provide greater organization and guidance to the organizations and that preteachers should have instruction in adult teaching methods.

Table 5 presents an array of items which specifically addressed some of the issues and concerns about policies and procedures which may be unique to Ohio, and Table 6 summarizes responses to open-ended items. These two tables illuminated several areas of concern to Ohio officers and officials. For example, in Table 5, the members obviously did not want to diminish recreational activities, did want to increase local membership, and did wish to use promotion to increase membership; however, they do not agree that the organizations should be combined or that their annual conference should be held in different locations each year. The most frequent response provided to the open-ended item was to improve member involvement, with the second most frequent being provided a listing of topics and speakers for meetings. The fact that several members saw the necessity to comment on several other items probably suggests that further investigation or study should be conducted in these areas. For example, the location of leadership seminars, assistance for state program planning, advisor enthusiasm, and the quality of the educational programs should be examined in greater detail.

In addressing Objective 3, Table 7 provides the correlations between the characteristics and the perceptions of the needed improvement across the three domains. Using the conventions of Davis (1971) to describe the magnitudes of the correlations, all relationships were low to negligible. The direction of the correlation between years farmed and the domains was negative which would indicate as years in farming increased the domain ratings tended to decrease. However, the magnitude revealed great variability which might indicate that the more experienced farmers were more critical (saw a need for greater improvements) by tending to disagree with the statements. The correlation of .19 between type of occupation and "improvements needed in agribusiness involvement," given the way the categorical variable of type of occupation was coded, indicated that those who were employed in off-farm occupations tended to seek greater involvement of agribusiness which might be an expected result.

## IMPLICATIONS AND/OR RECOMMENDATIONS

These results were generalizable to the 1986-87 members of the OYFA and the OYFWA within the confines of the sampling error. Frame, selection and nonresponse errors were controlled to improve the generalizability of the results. Reliability and validity of the instrumentation were established to control measurement errors.

Members tended to obtain agricultural information from sources other than the vocational agriculture instructor. Information they did receive from the instructor was perceived to be somewhat valuable. This conclusion essentially supports that of Smith and Kahler (1982) who found vocational agriculture instructors' rating falling in the "of little or no value" category, whereas these results were labeled as somewhat valuable.

The members perceived that few changes needed to be made to improve their local chapters. Members agreed that more emphasis should be placed on business management and that monthly meeting were appropriate. They tended not to support statements for alternative delivery of educational programs and additional services such as baby-sitting.

The involvement of agribuinsesses and their personnel was essentially encouraged by the members. They perceived that agribusiness should provide more programs and be more active as members. This can have some implications for those who attempt to recruit new members for the organization. Further, given the average age of members, particular attention should be focused upon recruiting younger members.

Few suggestions resulted from the area "improvement in instruction." One should note that a reoccurring suggestion on the open-ended item was related to the improvement of instruction. Further study should investigate the dimensions of instruction which need improvement. Tables 5 and 6 may offer some specific conclusions relative to existing and potential policies and procedures which should be followed in Ohio. Ohio young farmer and young farm wives may not be atypical of those in other states and careful persual of these comments and data might prove beneficial for consideration by others, or for framing a similar study in other states.

Members seemed supportive, overall, of the areas related to their organizations included in this study. This does not preclude the possibility that other dimensions of the domains should be investigated or that pilot efforts to examine the effectiveness of alternative program planning and delivery systems should be attempted. This exploratory effort to describe what members perceive are the needed improvements in their organization will hopefully encourage others to add to the limited knowledge base in more depth and detail.

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Table 1. Respondents' ratings of perceived value of different sources of technical information.

| Source | Mean | S.D. |
|---|---|---|
| Farm Magazines | 3.32 | .67 |
| ASCS Personnel | 3.15 | .92 |
| Radio for Agriculture | 3.07 | .81 |
| OCES Personnel | 3.01 | .82 |
| SCS Personnel | 2.97 | .89 |
| Vo. Ag. Teacher | 2.96 | .82 |
| TV for Agriculture | 2.91 | .92 |
| Daily Newspaper | 2.76 | .88 |
| OSU Ag. Bulletin | 2.76 | .78 |
| USDA Ag. Bulletin | 2.75 | .79 |
| Commercial Companies | 2.74 | .91 |
| College Personnel | 2.29 | .86 |
| FMHA Personnel | 1.96 | .88 |

Acronyms Used:

OSU -- Ohio State University
USDA -- U.S. Department of Agriculture
OCES -- Ohio Cooperative Extension Service
SCS — Soil Conservation Service
FMHA -- Farmers Home Administration
Vo. Ag. -- Vocational Agriculture
ASCS -- Agricultural Stabilization and Conservation Service

Table 2. Members' perceptions of local chapter improvements.

| Improvements | Level of Agreement | |
|---|---|---|
| | Mean | S.D. |
| Our local chapter's program of activities should be evaluated each year by all members. | 3.05 | .52 |
| Our meetings need more in-depth technical content. | 2.39 | .61 |
| Day-long classes for the members in the off-season should be implemented. | 2.14 | .66 |
| Our local chapter should have an educational meeting each month. | 2.87 | .63 |
| Educational classes should be more in-depth on specific topics and teach both the theory and the application of the material. | 2.82 | .56 |
| More business management topics should be presented at local chapter educational meetings. | 2.91 | .45 |
| Few agricultural production topics should be presented at local chapter educational meetings. | *3.05 | .57 |
| Our local chapter needs to have more meetings each year. | 2.14 | .54 |
| Baby-sitting services should be provided at local meetings for members with young children. | 2.36 | .72 |

Domain mean = 2.6, S.D. = .26

* Items marked were scored negatively.

Table 3. Members' perceptions of improvements needed in agribusiness participation.

| Improvements | Level of Agreement Mean | S.D. |
|---|---|---|
| Agricultural business should provide speakers on important business topics at our local meetings. | 3.07 | .54 |
| Local businesses should be more involved in our local chapter. | 3.00 | .55 |
| More agricultural business people should be members of the OYFA/OYFWA organizations. | 3.03 | .55 |

Domain mean = 3.0, S.D. = .45

Table 4. Members' perceptions of improvements needed in instruction.

| Improvements | Level of Agreement Mean | S.D. |
|---|---|---|
| The Vocational Agriculture Division of the State Department of Education needs to give more organization and guidance to the vocational agriculture teacher. | 2.78 | .70 |
| Teachers must take a course on teaching adults while in teaching training to improve adult teaching methods. | 2.77 | .82 |
| Vocational agriculture instructors need to be more aware of the opportunities and benefits of the OYFA/OYFWA organizations. | 3.00 | .63 |
| The local vocational agriculture instructor should make at least four home visits to each member per year. | *2.06 | .70 |

Domain mean = 2.6, S.D. = .59

* Items marked were scored negatively.

Table 5. Other statements concerning perceptions of improvements needed.

| Improvements | Level of Agreement | |
|---|---|---|
| | Mean | S.D. |
| Women should play a greater role at the state level. | 2.74 | .65 |
| Women should pay state dues like the men. | 2.67 | .74 |
| More members are needed in the local chapters. | 3.30 | .57 |
| Promotion of the local chapters should be increased to help enroll new members. | 3.21 | .54 |
| August is the best month to have the OYFA/OYFWA Summer Camp program. | 2.65 | .85 |
| The OYFA/OYFWA State Conference should be held in a different location each year. | 2.53 | .89 |
| More family recreation is needed to improve family participation in chapter activities. | 2.72 | .63 |
| The entire family should be more involved in the local chapter activities. | 2.87 | .54 |
| Recreation should be eliminated from our local program. | *3.46 | .54 |
| All rural school districts need both an OYFA and an OYFWA chapter. | 2.69 | .69 |
| The OYFA and OYFWA should be combined into one organization. | 2.30 | .82 |

* Items marked were scored negatively.

Table 6. Respondents' open-ended recommendations for improvements.

| | Frequency |
|---|---|
| **Chapter Operations** | |
| Improve membership involvement | 29 |
| Need state program planning assistance | 06 |
| Improve advisor enthusiasm for the program | 06 |
| Improve local chapter organization | 05 |
| Advisor needs guidelines for conducting chapter operations | 04 |
| Need more county-wide events | 03 |
| **Educational Programs** | |
| Want a state-wide listing of topics and speakers made available through the state organization | 12 |
| Need modern programs | 10 |
| Improve the quality of the educational programs | 06 |
| Women need programs on farm operations | 03 |
| **Leadership Activities** | |
| Return leadership seminars back to the local levels--Columbus is too far to drive | 07 |
| None in the chapter | 04 |
| **Overall OYFA/OYFWA Organizations** | |
| Need to inform the public about agriculture | 04 |
| Move the state convention around the state | 04 |
| Combine the organizations | 04 |
| Provide monies to reimburse state officers and council members for expenses | 03 |
| Provide newsletters to local members | 03 |
| Improve the communication between local chapters and the state organization | 03 |

Table 7. Relationship between members' characteristics and perceptions of needed improvements.

| Characteristics | Domains[a] 1 | 2 | 3 |
|---|---|---|---|
| Membership | .06 | .11 | .05 |
| Membership type | .10 | .19 | .11 |
| Years of membership | -.09 | .01 | .09 |
| State tour participation | .04 | .03 | .13 |
| State conference participation | .01 | .02 | .17 |
| State camp participation | .03 | -.04 | .13 |
| Number of chapter meetings per year | .10 | .10 | .03 |
| Local residence | .10 | .13 | .12 |
| Type of occupation | .09 | .19 | .06 |
| % acres farmed owned | .01 | -.01 | .03 |
| Acres farmed | .08 | .14 | .14 |
| Years farmed | -.24 | -.16 | -.12 |
| Education level | .04 | .12 | .05 |
| Vo. Ag. in high school | .07 | .03 | -.05 |
| 4-H member | .09 | .05 | .04 |

[a] 1 = Improvements needed in local chapter

2 = Improvements needed in agribusiness participation

3 = Improvements needed in instruction

# LEADERSHIP ABILITY OF YOUNG RURAL ADULTS IN NORTH DAKOTA

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## INTRODUCTION

Most communities, rural or urban, are in need of effective leaders to aid in meeting their goals and needs. Effective community leaders are increasingly necessary in today's complex and rapidly changing society. A problem facing rural communities is that the pool of individuals who are able to provide effective leadership is considerably smaller in number than in urban areas.

Leadership has been defined as "the means by which one or more persons aid a group in setting and attaining desirable goals" (Kreitlow et al., 1965, p. 57). Wills (1974) defined a leader as a person who has the ability to get others to act in a certain and definite way. Contrary to popular opinion, leadership characteristics are not inherited; they are developed over a period of time.

Agriculture is North Dakota's largest industry. Therefore, it is important for the industry to have strong leadership. This leadership is likely to originate from individuals in rural areas of the state. Rural communities and agriculture, civic, service, social, fraternal, and church organizations are only as strong as their leadership. Citizens in rural communities tend to have fewer opportunities to develop leadership abilities than do residents of urban communities. How then do the persons placed in leadership positions function effectively? Do they possess skills necessary to lead effectively? Where have they acquired their leadership abilities? This study was an attempt to answer some of these questions.

The Cooperative Extension Service and/or Colleges of Agriculture in the land grant universities of several states have been involved in conducting public affairs leadership development programs for rural leaders. The W. K. Kellogg Foundation of Battle Creek, Michigan, provided more than $4 million in financial assistance for programs conducted in Pennsylvania, California, Michigan, and Montana (Howell et al., 1982). Although these programs were determined to be successful, evidence is lacking which indicates the programs were developed based upon research that first determined the leadership needs of the people in those respective states.

In 1976, the National Advisory Council on Women's Educational Programs conducted a major investigation to determine the educational needs of rural women and girls in the United States. The investigation involved a series of four consultations by the Council in different locations around the country which gave rural women and girls a chance to speak out on their educational needs and concerns. Clarenbach (1977) reported the investigations suggested a need for expanded programs that developed processes for the identification of leadership and then helped with the translation of leadership experience and skills into political and public policy leadership.

Williams and Faulkner (1979) evaluated the impact on participants of the Kellogg Extension Education Project conducted in Montana. The Kellogg Extension Education Project was funded from the W. K. Kellogg Foundation for the purpose of increasing leadership skills of present and future leaders in Montana. Activities of the program ranged in intensity from a one-week training program to a study travel program of roughly four weeks' duration per year for a period of three years. The results reported indicate that participation in the Kellogg Extension Education Program positively affected participants' perceptions of their leadership abilities. A total of 81.9% of all participants reported that the program had made a difference in their lives. The data also suggested that participation in the program had a measurable impact on participants' exercise of leadership in public affairs activities.

An understanding of the characteristics, leadership qualities and leadership development needs of young adults in rural North Dakota will be useful in determining the need for leadership development programs in the state. The information may subsequently prove to be useful in developing such programs. This data should be helpful in determining program content and method.

## PURPOSE AND OBJECTIVES

The primary purpose of this study was to assess the perceived leadership abilities of young adults residing in rural areas of North Dakota.

Specific objectives of this study were: 1) To identify selected biographical characteristics of young adults residing in rural areas of North Dakota such as age, sex, level of education, marital status, and size of family; 2) To determine the perceived leadership ability of young rural adults in North Dakota; and 3) To compare results of the perceived leadership ability of young rural adults using selected biographical characteristics as variables.

## PROCEDURES

### Population and Sample

The target population for this study was young adults residing in rural North Dakota. For the purpose of this study, the researcher determined that young adults were considered to be those persons between the ages of 18 and 40. Rural areas were considered to be cities with a population of fewer than 2,500 and those areas outside of towns and cities.

According to the 1980 census, there were approximately 87,290 persons between the ages of 18 and 40 residing in rural North Dakota (Bureau of the Census, 1980). A sample size of 1,500 was desired for the study. This number far exceeded the necessary sample size according to Krejcie and Morgan (1970).

Because the record of licensed drivers represents the most complete list of persons between the ages of 18 and 40 in the state, permission was sought and granted by the Drivers License Division of the North Dakota Highway Department to obtain the sample from their list of licensed drivers. A systematic random sampling procedure was used to draw a sample of 2,000 names with addresses whose birthdays fell between January 1, 1944, and January 1, 1966; and whose addresses contained a zip code matching those of rural areas.

A total of 2,000 names was requested to allow for over-sampling in an effort to reduce sampling error. The researcher was aware that some addresses might have been incomplete; people moved and forwarding addresses had expired; and some people moved out of the state. Of the 2,000 names and addresses supplied, 180 were eliminated because they were residents on military installations and were not considered appropriate to the sample criteria. A total of 1,820 persons remained in the sample.

## Instrumentation

Data for this study were collected by use of a mail survey questionnaire. The questionnaire was developed by the researcher using related literature and previous research as a basis. Assistance was obtained from a panel of experts including an extension sociologist, former teachers of vocational agriculture, and agricultural education staff. The questionnaire was divided into four parts. Part I asked respondents to provide background information. Part II consisted of 70 statements reflecting leadership characteristics. Respondents were asked to report their perceived leadership by indicating their level of agreement most descriptive of their feeling toward the statement. Available responses were on a Likert-type scale as follows: 1=strongly disagree; 2=moderately disagree; 3=slightly disagree; 4=slightly agree; 5=moderately agree; and 6=strongly agree. Only data from Parts I and II will be addressed in this report. The questionnaire was pilot tested for content validity using undergraduate and graduate students as the test group.

## Data Collection

The questionnaire along with a cover letter and self-addressed, stamped envelope were sent in October of 1984 to each of the 1,820 persons in the sample. Non-respondents were followed up with a second questionnaire package. A total of 311 questionnaires were not deliverabe due to outdated addresses. This left 1,509 remaining in the sample - still more than the desired 1,500.

Totally, 578 usable questionnaires were returned resulting in a 38.3% response rate. As the questionnaires were returned, they were categorized as either early or late respondents. An anlysis of the responses to Part II revealed no significant differences between the mean scores of early and late respondents. If non-respondents are most likely to respond as late respondents do, one can than conclude the non-respondent group was similar to respondents.

## Data Analysis

Data were entered and stored in the computer for analysis purposes. Frequencies and percentages were used to report results regarding the biographical characteristics of respondents. To determine the perceived leadership ability of respondents, data were analyzed using frequencies, mean scores, and standard deviations. Inferential statistics were used to analyze the data when making comparisons of the percieved leadership ability using selected biographical characteristics as the basis for comparison. The t-test program of the Statistical Analysis System (SAS) was used when comparing two groups. Analysis of variance (ANOVA) was used when making comparisons among more than two groups. If significant differences did occur, the Duncan's Multiple Range Test was used to determine between which groups the significant differences did occur. An alpha level for significance was set at $p<.05$. An analysis of the reliability of the instrument was determined to be .908 using Cronbach's Alpha.

# RESULTS

## Biographical Characteristics

Respondents were asked to respond to qustions seeking information regarding selected biographical characteristics. Table 1 reveals the results of that information.

A total of 75.3% of the respondents were in the age categories between 20 and 34 years of age. Only 6.2% were 18 and 19 year olds, while 2.4% were 40 years old or older. Females (52.2%) represented a larger percentage of the sample than males (47.8%). Almost two-thirds (62.3%) of the respondents were married, 34.2% had never been married, and 3.5% were divorced. When asked the number of children living with respondents, 43.7% reported none, 36.2% had one or two, 19.2% had three or four, and less than 1% had five or more. A total of 32.1% of the respondents reported that 12 years was the highest level of schooling completed. Only 3.5% had completed less than 12 years and 16.6% completed 16 years of schooling. A majority (54.1%) of the respondents were raised on a farm, 31.7% currently live on a farm, and 56.1% live in a town or city.

## Leadership Ability

Objective two of this study sought to determine the perceived leadership ability of young rural adults in North Dakota. Respondents were asked to respond to statements indicating leadership skills according to their level of agreement with the statement. Table 2 reports the perceived leadership ability of all respondents. The data reported includes mean scores and standard deviations for each leadership skill statement.

In general, young adults residing in rural areas of North Dakota perceive their leadership ability to be good. The leadership skill statements in the category of General Leadership receiving the highest mean score ratings were: I understand that other people have feelings, motives, and goals of their own ($\bar{x}=5.58$); I like to see conflicts resolved ($\bar{x}=5.54$); I enjoy sharing information with others ($\bar{x}=5.37$);

TABLE 1 - Biographical Characteristics of Respondents

| Characteristics | Number | Percent |
|---|---|---|
| Age | | |
| 19 and under | 36 | 6.2 |
| 20 - 24 | 150 | 26.0 |
| 25 - 29 | 152 | 26.3 |
| 30 - 34 | 133 | 23.0 |
| 35 - 39 | 93 | 16.1 |
| 40 and over | 14 | 2.4 |
| | 578 | 100.0 |
| Sex | | |
| Female | 301 | 52.2 |
| Male | 276 | 47.8 |
| | 577 | 100.0 |
| Marital Status | | |
| Married | 359 | 62.3 |
| Never Married | 197 | 34.2 |
| Divorced | 20 | 3.5 |
| Widowed | 0 | 0.0 |
| | 576 | 100.0 |
| Number of Children Living at Home | | |
| None | 252 | 43.7 |
| One | 93 | 16.1 |
| Two | 116 | 20.1 |
| Three | 79 | 13.7 |
| Four | 32 | 5.5 |
| Five or more | 5 | 0.9 |
| | 577 | 100.0 |
| Highest Level of Schooling Completed | | |
| Less than 8 years | 0 | 0.0 |
| 8 years | 4 | 0.7 |
| 9 years | 4 | 0.7 |
| 10 years | 8 | 1.4 |
| 11 years | 4 | 0.7 |
| 12 years | 185 | 32.1 |
| 13 years | 105 | 18.2 |
| 14 years | 97 | 16.8 |
| 15 years | 28 | 4.9 |
| 16 years | 96 | 16.6 |
| 17 years | 18 | 3.1 |
| 18 or more years | 28 | 4.9 |
| | 577 | 100.1* |
| Where Raised | | |
| On a farm | 312 | 54.1 |
| In the country, but not on a farm | 39 | 6.8 |
| In a town or city | 226 | 39.2 |
| | 577 | 100.1* |
| Current Residence | | |
| On a farm | 183 | 31.7 |
| In the country, but not on a farm | 71 | 12.3 |
| In a town or city | 324 | 56.1 |
| | 578 | 100.1* |

*Totals do not equal 100 due to rounding procedures

Other people can depend on me to accomplish a task for them ($\bar{x}$=5.37); and I willingly listen to others ($\bar{x}$=5.36). The mean scores indicate the respondents agreed moderately to strongly with the statements.

The leadership skill statements in the category of Speaking Skills tended to receive lower ratings than the other categories. Statements in this category receiving the highest ratings were: I enjoy expressing my ideas on a given issue ($\bar{x}$=4.52); and I feel confident to openly promote issues I feel strongly about ($\bar{x}$=4.39).

Leadership skill statements belonging to the category of Group Leadership Skills tended to have lower ratings than statements in the General Leadership and Work Related Leadership categories. The statements of: Once I begin a project, I feel I must see it through to completion ($\bar{x}$=5.07); I enjoy meeting new people ($\bar{x}$=5.01); Making friends and getting along with other people is easy for me ($\bar{x}$=4.83); and Other people accept my ideas ($\bar{x}$=4.51) were the highest.

Work Related Leadership statements tended to be rated quite high. Those rated highest in were: I like to maintain good interpersonal relations with my co-workers ($\bar{x}$=5.35); I feel I am proficient in my work ($\bar{x}$=5.28); I can work persistently for just cause, without giving up or backing off ($\bar{x}$=4.97); and I am enthused about my work ($\bar{x}$=4.96).

## Comparison of Leadership Abilities

The third objective of this study was to compare results of the perceived leadership ability of young rural adults using selected biographical characteristics as variables. Comparisons were made using sex, marital status, location where raised, current residence, age, and amount of schooling completed. Due to the length and complexity of tables reporting the comparison data as well as to length restrictions for this report, the individual tables are not included here.

### Sex

There was a significant difference between the mean scores of females and males on 27 of the 70 leadership skill statments. The mean scores of females were more desirable (higher on positively stated items and lower on negatively stated items) for 16 of the 27 leadership skill statements in which there were significant differences. The mean scores of females were more desirable for 28 of the 43 General Leadership skill statements and 8 of the 14 Group Leadership skill statements. Male mean scores were more desirable for 3 of the 5 statements in the Speaking Skills category and 5 of 8 in the Work Related Leadeship category. Totally, female mean scores were more desirable than male scores on 41 of the 70 statements.

Leadership skill statements in which the greatest amount of difference in mean scores occurred were: People seek guidance from me when they are having a difficult time (female $\bar{x}$=4.56, male $\bar{x}$=4.28); I willingly listen to others (female $\bar{x}$=5.49, male-$\bar{x}$=5.21); I am concerned about maintaining good interpersonal relationships (female $\bar{x}$=5.30, male $\bar{x}$=5.08); I am an effective decision maker (female $\bar{x}$=4.39, male $\bar{x}$=4.72); I consider myself to be a follower (female $\bar{x}$=3.48, male $\bar{x}$=3.05); My emotions often get in the way of making a rational decision (female

TABLE 2 - Perceived Leadership Ability of Young Rural Adults

| LEADERSHIP SKILLS | N | Mean* | S.D. |
|---|---|---|---|
| GENERAL LEADERSHIP | | | |
| 1. I can motivate people. | 574 | 4.60 | 0.945 |
| 2.**I am unable to inspire people. | 575 | 2.43 | 1.267 |
| 3. Other people accept me as a leader. | 574 | 4.33 | 1.160 |
| 4. People look to me for advice. | 575 | 4.65 | 1.012 |
| 5. I persevere on a project until it is completed. | 573 | 5.09 | 0.985 |
| 6. I consider myself a flexible person. | 575 | 5.14 | 0.910 |
| 7.**Rarely do I take a chance on a new idea. | 575 | 2.51 | 1.294 |
| 8. I am unafraid to research answers to questions which I don't know. | 575 | 4.32 | 1.671 |
| 9. People seek guidance from me when they are having a difficult time. | 575 | 4.42 | 1.097 |
| 10. I believe that my ideas are practical in nature. | 575 | 5.07 | 0.822 |
| 11. I willingly listen to others. | 575 | 5.36 | 0.819 |
| 12.**I find it difficult to consider another person's point of view. | 573 | 2.04 | 1.254 |
| 13.**I feel unconfident with my capabilities. | 574 | 2.76 | 1.637 |
| 14. I am the type of person involved with professional and community affairs. | 574 | 3.64 | 1.640 |
| 15. I am a dependent person. | 574 | 3.62 | 1.817 |
| 16. I am concerned about maintaining good interpersonal relationships. | 575 | 5.19 | 0.915 |
| 17. I consider myself to be a valuable contributor to the human race. | 575 | 4.83 | 0.979 |
| 18. I enjoy success and strive for it. | 574 | 5.12 | 0.986 |
| 19. I can see both sides of an argument in question. | 575 | 4.99 | 0.931 |
| 20. I am self-conscious about what I do. | 575 | 4.65 | 1.365 |
| 21. Making mistakes tends to stimulate worry about making another mistake. | 574 | 3.78 | 1.555 |
| 22. I am an effective decision-maker. | 575 | 4.55 | 1.029 |
| 23. I understand that other people have feelings, motives and goals of their own. | 575 | 5.58 | 0.696 |
| 24. I enjoy sharing information with others. | 575 | 5.37 | 0.777 |
| 25. Other people can depend on me to accomplish a task for them. | 574 | 5.37 | 0.772 |

TABLE 2 - Perceived Leadership Ability of Young Rural Adults, Cont.

| LEADERSHIP SKILLS | N | Mean* | S.D. |
|---|---|---|---|
| **GENERAL LEADERSHIP**, Cont. | | | |
| 26. I consider myself to be intelligent. | 575 | 5.07 | 0.860 |
| 27.**I do not like to be the one to initiate projects. | 573 | 3.24 | 1.481 |
| 28. I am a person who is original in my ideas and activities. | 574 | 4.39 | 1.088 |
| 29. I have a good sense of humor. | 573 | 5.17 | 0.797 |
| 30. People will confide in me because they consider me to be trustworthy. | 575 | 5.28 | 0.785 |
| 31.**I cannot tolerate frustration and delays. | 575 | 3.85 | 1.451 |
| 32. I like to see conflicts resolved. | 573 | 5.54 | 0.729 |
| 33.**Being tolerant of uncertainty is not an essential part of my life. | 559 | 3.36 | 1.432 |
| 34.**I am a moody person. | 575 | 3.11 | 1.522 |
| 35. I encourage others to become involved in various projects. | 573 | 4.34 | 1.279 |
| 36. I use tact in everyday life. | 574 | 4.70 | 1.004 |
| 37. I am a cordial person. | 570 | 4.96 | 0.944 |
| 38.**I consider myself to be a follower. | 574 | 3.28 | 1.503 |
| 39.**I felt extra-curricular activities in high school were not a very important part of my life. | 574 | 2.59 | 1.794 |
| 40.**I am often ignored. | 575 | 2.57 | 1.411 |
| 41. I feel people respect and admire me for the person I am. | 573 | 4.83 | 0.967 |
| 42. When someone comes to me with a problem, I try to put myself in their shoes so I can better understand the problem. | 575 | 5.09 | 0.910 |
| 43.**My emotions often get in the way of making a rational decision. | 575 | 3.13 | 1.501 |
| **SPEAKING SKILLS** | | | |
| 44. I feel confident to openly promote issues I feel strongly about. | 575 | 4.39 | 1.324 |
| 45. I enjoy expressing my ideas on a given issue. | 574 | 4.52 | 1.253 |
| 46. I feel at ease in leading a group. | 575 | 3.61 | 1.589 |
| 47.**I have trouble speaking in front of large groups. | 574 | 3.84 | 1.781 |
| 48.**I am hesitant to discuss a difficult situation. | 573 | 3.45 | 1.525 |

TABLE 2 - Perceived Leadership Ability of Young Rural Adults, Cont.

| LEADERSHIP SKILLS | N | Mean* | S.D. |
|---|---|---|---|
| GROUP LEADERSHIP SKILLS | | | |
| 49.**When working in a group, I spend more time talking than any other person in the group. | 575 | 2.51 | 1.374 |
| 50. I am willing to take charge and lead a group. | 575 | 3.82 | 1.538 |
| 51.**I am not able to persuade others to respect my point of view. | 574 | 2.67 | 1.185 |
| 52. Other people accept my ideas. | 573 | 4.51 | 0.872 |
| 53. Making friends and getting along with other people is easy for me. | 575 | 4.83 | 1.176 |
| 54. My ability to convey ideas and convince ideals in the social arena is good. | 575 | 4.06 | 1.218 |
| 55. People often seat me at the head of a table in a group discussion. | 567 | 2.98 | 1.383 |
| 56. I usually hold back from taking part in the discussion for a short time before I interact. | 574 | 4.41 | 1.306 |
| 57. Belonging to organizations is important to me. | 575 | 3.54 | 1.599 |
| 58. Once I begin a project, I feel I must see it through to completion. | 574 | 5.07 | 1.108 |
| 59.**It is not easy for me to develop an interest in people. | 575 | 2.31 | 1.414 |
| 60. I enjoy mingling with people in a large group. | 575 | 4.01 | 1.573 |
| 61.**I am intolerant of individuals who deviate from society norms. | 564 | 3.09 | 1.401 |
| 62. I enjoy meeting new people. | 575 | 5.01 | 1.062 |
| WORK-RELATED LEADERSHIP | | | |
| 63. I view myself as a professional. | 564 | 4.41 | 1.590 |
| 64. Each year brings me closer to my occupational goal. | 563 | 4.25 | 1.539 |
| 65.**I am inconsistent in my work habits. | 563 | 2.54 | 1.590 |
| 66. I consider myself to be an achiever in life. | 564 | 4.71 | 1.141 |
| 67. I am enthused about my work. | 561 | 4.96 | 1.056 |
| 68. I can work persistently for just cause, without giving up or backing off. | 563 | 4.97 | 0.947 |
| 69. I like to maintain good interpersonal relations with my co-workers. | 562 | 5.35 | 0.871 |
| 70. I am proficient in my work. | 561 | 5.28 | 0.782 |

*6 = Strongly agree 5 = Moderately agree 4 = Slightly agree
3 = Slightly disagree 2 = Moderately disagree 1 = Strongly disagree
**Negatively stated leadership skills. Lower mean scores=more desirable.

$\bar{x}$=3.34, male $\bar{x}$=2.90); Belonging to organizations is important to me (female $\bar{x}$=3.73, male $\bar{x}$=3.34); It is not easy for me to develop an interest in people (female $\bar{x}$=2.12, male $\bar{x}$=2.50); I view myself as a professional (female $\bar{x}$=4.13, male $\bar{x}$=4.71); and Each year brings me closer to my occupational goal (female $\bar{x}$=4.02, male $\bar{x}$=4.49).

## Marital Status

A significant difference in the mean scores of the leadership skill statements between married and single respondents occurred for only six statements. Mean scores of single respondents were more desirable for five of the six leadership skill statements in which there were significant differences. Single people's mean scores were more desirable than married people on 27 of the 43 *General Leadership* statements, 10 of the 14 *Group Leadership* statements, and four of the eight *Work Related Leadership* statements. Married people had more desirable mean scores on four of the five *Speaking Skills* statements. Totally, singles had a more desirable mean score on 43 of the 70 leadership statements.

## Location Where Raised

The location where respondents were raised made a very little difference on their perceived leadership ability. Individuals raised on a farm had a more desirable mean score on 37 of the 70 leadership skill statements than respondents who were not raised on a farm. A significant difference in mean scores occurred for only eight of the leadership statements. Mean scores for respondents raised on a farm were more desirable on five of the eight statements in which there were significant differences. Respondents who were not raised on a a farm had a more desirable mean score on all five of the statements concerning *Speaking Skills*, but respondents raised on a farm had a more desirable mean score on nine of the 14 items in the *Group Leadership* skills.

## Current Residence

A comparison was made of respondents' perceived leadership ability based upon their current residence - whether living on a farm or not living on a farm. Although respondents who were not living on a farm had a more desirable mean score on 48 of the 70 leadership skill statements, a significant difference in the mean score only appeared on six of the 43 statements in the *General Leadership* category, none of the five *Speaking Skills* statements, one of 14 *Group Leadership* statements, and two of the eight statements in the *Work Related Leadership* category.

Respondents who were not living on a farm had a more desirable mean score on eight of the nine statements in which significant differences occurred. Leadership skill statements for which the mean scores showed the greatest amount of significant difference were: People look to me for advice (Farm $\bar{x}$=4.46, Nonfarm $\bar{x}$=4.75); People seek guidance from me when they are having a difficult time (Farm $\bar{x}$=4.24, Nonfarm $\bar{x}$=4.51); and People will confide in me because they consider me to be trustworthy (Farm $\bar{x}$=5.12, Nonfarm $\bar{x}$=5.35).

## Age

Because of the amount and complexity of the data gathered while comparing age categories and the limitations of a report of this length, only general findings will be reported. A comparison of respondents' age categories revealed that their ages made little difference on their perceived leadership ability. Persons in the 24 and under age category perceived their leadership ability to be higher than other age groups on 40% of the skill statements. However, a significant difference was found on only nine items. Persons in the 35 and over age category perceived their leadership ability to be higher than persons in the 25-29 and 30-34 age brackets. This may be explained by the fact that more leadership development opportunities have been available in recent years than 15-20 years ago.

Leadership skill statements in the General Leadership category on which significant differences of mean scores appeared were: I am the type of person involved with professional and community affairs; I am a dependent person; and I felt extra curricular activities in high school were not a very important part of my life. There were no statements in the Speaking Skills category with differences in mean scores. Group Leadership Skills statements revealing significant differences in mean scores were: Making friends and getting along with other people is easy for me; It is not easy for me to develop an interest in people; I enjoy mingling with people in a large group; and I enjoy meeting new people. Statements in the Work Related Leadership category on which significant differences of mean scores occurred were: Each year brings me closer to my occupational goal; and I consider myself to be an achiever in life.

## Years of School Completed

The amount of school completed by respondents made more difference on their perceived leadership ability than any other characteristic studied. The more school completed, the higher the perceived leadership ability. Young rural adults who had completed 16 years of school or more perceived their leadership ability to be higher than those with less schooling. Those who had completed 13-15 years rated their level of leadership higher than those completing 12 years or less. This raises the question: Do persons with higher levels of leadership ability pursue higher levels of education, or do high levels of education contribute towards additional leadership skill development? One would assume that higher levels of education contribute to leadership development in that more activities and opportunities are more readily available to those continuing their education.

## CONCLUSIONS AND RECOMMENDATIONS

Based on these findings, the following conclusions have been drawn:

1. Young adults living in rural North Dakota felt good about their leadership abilities, especially in the General Leadership and Work Related Leadership categories. Speaking skills was their weakest area.

2. The greatest amount of difference in perceived leadership ability occurred between sexes (females being higher) and among various levels of school completed (higher leadership among those with higher levels of school completed).

3. A profile of an individual with the highest level of leadership would be: female, single, no children living at home, raised on a farm, not currently living on a farm, 24 years old or less, and has completed 16 or more years of school.

The following recommendations have been made:

1. The findings of this study may serve as a basis for developing leadership programs in the state. Agricultural educators/ Extension personnel having responsibility for leadership development programs should include the leadership skills in which the young adults perceived themselves to be lowest.

2. Because speaking skills were perceived to be the lowest rated category of leadership skills, agricultural educators should encourage other teachers, administrators, and others working with young people to provide opportunities and encouragement for the young adults to develop speaking skills.

3. Agricultural educators might consider providing leadership development opportunities for young adults in their respective communities.

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Topic I.

## Factors Influencing The Occurrence of Adult Agricultural Education Programs

Oren L. Christmas and J. Robert Warmbrod,
Ohio State University

by JAMES LEGACY

Southern Illinois University

This is a good study. It is well written. The flow of the paper leads the reader to expected results. The results are reinforced with concise conclusions.

There are several points for the authors consideration:

1. The literature review recognizes the responsibility of adult education at the high school administrators level. There are other agencies which have substantial responsibility for adult education and adult education in agriculture. A discussion in the formulation of the papers direction would perhaps leave the reader with a more clear sense of the Vocational Agriculture programs specific duty to adult education in agriculture.
2. Page 2. I would like to know more about the panel of experts, such as their qualifications.
3. Page 5. I need to know more about the policy index. Was the index validated? What was its level of reliability?
4. Page 6. The last paragraph states the research confirms that a certain teacher attitude and experience was found to influence the existence of young farmer programs. The next part is troublesome: The statement is, that preservice and inservice will remedy the attitude. My question is; If all the current teachers had preservice and inservice education and some have Young farmer programs and some do not. Why would one conclude that more preservice and inservice would result in anything different. Perhaps those with NO ADULT had poor preservice grades ??? I believe the authors have more specific recommendations for preservice and encourage them to report more specific directions for preservice and inservice activities which would enlighten Vocational Agriculture teachers regarding Young Farmer programs.

# Topic II:
# Improvements Needed In Young Farmer and Young Farmers Wives Organizations: Members Perceptions

Larry E. Miller,
Ohio State University

by JAMES LEGACY

Southern Illinois University

Overall this study was well done. The implications for use in Ohio is well documented. Implementation for Illinois and other states was not documented.

1. Introduction states the findings of this study have implications for other states. This extension could be more easily made if a more detailed description of Adult farmer education programs of Ohio was included. For example in Jackson County Illinois, the Soil Conservation Service young farmer group has a very active educational program. If the readers knew that Ohio Young Farmers were active participants with several educational programs, Jackson county program planners would know that two active young farmer programs are effective in meeting needs of one group of young farmers. The question could be answered if a more detailed description of Ohio Young Farmers was presented.

2. This study used a Likert like scale of 1 to 4. Past research has indicated that scales of 1 to 9 or 1 to 11 are more effective in detecting differences. More accurate measurement increases the opportunity to determine relationships between characteristics and perceptions.

I commend the author for attention to the process of research and for selecting a practical topic. This type of effort provides positive information for developing adult education programs in agriculture.

## Topic III:
## Leadership Ability of Young Rural Adults in North Dakota

Vernon D. Luft,
North Dakota University

by JAMES LEGACY

Southern Illinois University

This is an especially creative approach to agriculture education research. The use of a broad definition of agriculture education clientele, namely rural adults, is one of the creative parts of this studies methodology. Also is the use of licensed drivers as the sampling technique.

1. The sample was stated as a systematic random sample. My definition of systematic is selection of each Nth individual, while random sampling incorporates the element of keeping all individuals in population for each selection. The sample is either systematic or random or further explanation is needed.
2. Again as with the previous study, I make the case for a 1 to 11 scale. It would only increase the ability of the study to identify differences.
3. See pages 4 & 6. Suggest the use of a table to display the characters in parenthesis. This would make the study easier reading.
4. Last paragraph, the first sentence states differences were measured. This statement appears to be based on raw differences of mean scores. The study states that differences would be reported at alpha .05. I recommend using .05 for reporting differences here.
5. Discussion of results with a paragraph for each independent variable is very helpful. Suggest adding a paragraph for # of children.

Recommendation # 2 is particularly useful and highlights the need for this type of study. This recommendation provides empirical information to support inclusion of public speaking content for high school, college and university programs of agriculture education.

# THE RELATIONSHIP OF MARKETING ACTIVITIES AND PROMOTIONAL METHODS USED WITH COUNTY 4-H CLUB MEMBERSHIP IN NEW JERSEY AND OHIO

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## INTRODUCTION

Four-H has aimed to be an informal, practical, learning-by-doing educational program for all youth, ages 9-19, from all racial, cultural, economic, and social backgrounds, wherever they live. Four-H has been the youth development component of the Cooperative Extension Service, one of the three segments (research, teaching, and extension) of the land-grant institution in each state (4-H for youth, 1986).

In the more than 70 years since the Cooperative Extension Service and 4-H were established, many changes took place in the world, and accordingly, in the Cooperative Extension/4-Hprogram. Although 4-H enrollment has fluctuated over time, in recent years it has exhibited a general decline, somewhat greater than the downward trend of potential youth during the transition of "Baby Boomers" maturing and becoming parents. (Annual 4-H youth, 1980, 1985).

The issue of declining 4-H enrollment has prompted Extension professionals to determine which factors contribute to high enrollment. Since membership in 4-H has been voluntary, various methods have been needed to recruit new members and retain those currently enrolled. Ultimately, the problem facing the researcher was that although 4-H professionals have used promotional methods and marketing activities, they have not known which ones, individually or in combination, have been the most effective in attaining a high level of 4-H membership within counties. This study aimed to address this problem.

## PURPOSE AND OBJECTIVES

The major goal of this study was to determine how county 4-H club membership was related to the use of marketing activities and/or promotional methods by county 4-H programs. In addition to the m[illegible] variables investigated, the following rival variables were studied: percent of a county's population living in urban areas, average number of years of professional service to the 4-H program in their current counties by 4-H professionals, and the amount of professional time devoted to 4-H program responsibilities in each county (4-H PTD's). Also, the number of potential youth available to join 4-H in counties was controlled by defining 4-H club membership as a percentage of potential youth, for each county 4-H program.

The specific objectives of this study were as follows:

1. To describe the levels of the following attributes* for each of the states and the total population:
    a. Degree of use of promotional methods in county
    b. Variety of promotional methods used in county
    c. Degree of use of marketing activities in county
    d. Percent of county's population living in urban areas
    e. Amount of professional time devoted to 4-H program responsibilities (4-H PTD's) in county

   f. Number of years professional service to 4-H program in current county by 4-H professional(s).
   g. Gender of 4-H professional(s) in county
   h. Ages of 4-H professional(s) in county
   i. Number of 4-H club members enrolled in county
   j. Number of potential youth available to join 4-H in county
   k. Percent of potential youth served by 4-H clubs in county
   l. Types of Extension professionals working with 4-H in county
   m. Types of promotional methods used in county
   n. Types of marketing activities used in county

*This list is larger than the list of the variables used because some attributes were included for descriptive purposes only.

2. To describe the relationships between use of each of the 45 types of promotional methods and each of the 20 marketing activities listed with the dependent variable, percent of potential youth served by 4-H clubs.

3. To test the following main hypotheses:
   a. The greater the degree of use of promotional methods, the greater the percent of potential youth served by 4-H clubs.
   b. The greater the variety of promotional methods used, the greater the percent of potential youth served by 4-H clubs.
   c. The greater the degree of use of marketing activities, the greater the percent of potential youth served by 4-H clubs.

4. To test the following rival hypotheses:
   a. The greater the percentage of a county's population living in urban areas, the lower its percent of potential youth served by 4-H clubs.
   b. The greater the number of 4-H PTD's serving in a county, the greater the percent of potential youth served by 4-H clubs.
   c. The greater the average number of years professional service to the 4-H program in the current county by 4-H professionals, the greater the percent of potential youth served by 4-H clubs.

5. To determine the best predictor(s) of the dependent variable, percent of potential youth served by 4-H clubs.

## THEORETICAL FRAMEWORK

The size of 4-H membership in a given county has been affected by both the recruitment and retention of 4-H members. The researcher theorized that both marketing and promotion would be related to current 4-H enrollment. One aim of promotion is to communicate a favorable image of an organization (Pride & Ferrell, 1985). Consequently, since Boyle and Brown (1964, p.34) stated that "The image that people have of an organization will determine, to a great extent, their participation [in it]", then this would involve not only an initial decision to join an organization, but also a decision to remain in it, thus relating promotion to the aspect of retention as well as recruitment.

Marketing aims to meet customer/clientele needs and keep them satisfied, and thus would encourage customer loyalty to a product, or in this case, 4-H member retention. However, the application of variables involved in a market mix (product, price, promotion, and place) should also influence new members in their decisions to join an organization. If the market mix is right for them, they should be willing to enroll (Pride & Ferrell, 1985).

"Promotion . . . is the communication function of marketing" (Engel, Warshaw, & Kinnear, 1983, p. 16). It "refers to communication undertaken to persuade others to accept ideas, concepts, or things." Pride and Ferrell (1985, p. 331) stated that "Several types of promotional methods can be used to communicate with individuals, groups, and organizations" and that "When an organization combines specific ingredients to promote a particular product, that combination constitutes a promotion mix for that product." They listed four major categories of promotion that can be included in an organization's promotion mix: advertising, personal selling, publicity, and sales promotion. Within each category are a multitude of specific individual promotional methods available.

The desired outcome of promotional activity is based on the hierarchy of effects hypothesis,where promotion works "to stimulate awareness, which leads to attitude change, which leads to behavioral change." Thus, it "is basically a model of consumer response to promotional activity . . . [where] the consumer passes through the stages of awareness, knowledge (cognitive), liking and preference (affective), intention-to-buy or conviction, and purchase (behavioral)" (Engel, Warshaw, & Kinnear, 1983, p. 164). This is supported by models developed by Engel and Blackwell (1982) and Fishbein and Ajzen (1975).

Engel, Warshaw, & Kinnear (1983, p. 379) described a factorial experimental design employed by Ford Motor Company to compare sales in regions using various combinations of media in an advertising campaign. Ford reported that the data "revealed a definite relationship between advertising and sales but no significant advantage for any of the media tested." A variety of other studies regarding both Extension and non-Extension audiences (Scherer, 1980; Johnston, 1982; Lawson and Dail, 1966; Marsh and Knox, 1966; Wilson, 1963) have reported mixed results of the success of specific promotional methods and/or their potential for reaching audiences, depending on the objectives, use, and location of use of such methods. To date, there appear to be no clear answers regarding this complex topic.

Salcedo (1974) reported that a variety of channels have been shown to be more useful than public service mass media alone. Therefore, mass media, especially heavy reliance on a single type do not appear to be the answer to all problems of image and recruitment, emphasizing the need for the use of a variety of promotion methods. Literature related to learning theory and instructional media has also supported the value of using a variety of communication channels.

The term marketing has been heard frequently in recent years, although it is has not been clearly understood by many people. In general, marketing has been associated with only the business environment, but some aspects of the concept are applicable to non-business settings as well. Besides being a distinctly different management philosophy and orientation of an organization, marketing consists of activities performed by the management of the organization. One of the marketing activities performed by a program manager is the formulation of a marketing mix. A marketing mix consists of four decision variables, often known as the "4 P's": Product, Promotion, Price, and Place. Another marketing activity performed by a program manager is the development of a marketing strategy. A "marketing strategy encompasses selecting and analyzing a target market (the group of people whom the [organization] wants to reach) and creating and maintaining an appropriate marketing mix (product, price, promotion, distribution) that will satisfy those people" (Pride & Ferrell, 1985, p. 25).

George, Buchanan, and Bramblett (1976) claimed that a marketing management orientation supplements the work of adult educators such as Houle and Knowles, who were instrumental in using program planning models to develop programs for clients, and is easier to understand by Extension professionals. The authors proclaimed that the marketing approach "reorients the perspective of the Extension manager [so that] instead of focusing on a set of available institutional services, the Extension manager now begins the program development process based on felt and ascribed client needs" (p. 17). They described the following University of Georgia case as evidence of the potential results of applying marketing concepts to an educational organization:

> "In applying these marketing techniques, the service activities of the university have increased. The average annual increase in the number of programs held on campus has been 20% for the last 3 years, while the number of off-campus programs and projects conducted in the same period has tripled. This expansion has occurred without additions to the resource base. In addition, the pre- and post-program evaluations have revealed that the quality of service now being received by the clientele groups has risen sharply" (p. 16).

George, et al. concluded by stating that "The Extension program will ultimately fail unless marketing information is collected and used to develop marketing plans that effectively serve the Extension unit's publics" (p. 19).

## METHODOLOGY

This study was ex post facto research, with the primary purpose of determining how the use of promotional methods and marketing activities in 4-H related to the dependent variable, percent of potential youth served by 4-H clubs. A mailed questionnaire was the primary means used to collect data about the population studied. The target population of the study consisted of two sub-groups, or strata: the county 4-H programs in the 20 counties of New Jersey where Rutgers Cooperative Extension maintains 4-H, and those in the 88 counties of Ohio. Ultimately, 107 counties were studied, after one county in New Jersey was removed from the study (at the county's request) because the 4-H agent position was vacant and no other Extension professional with knowledge of the information requested was present in the county.

A written questionnaire was developed by the researcher to collect data to measure the levels of the following variables and attributes: types of marketing activities used, degree of use of marketing activities, types of promotional methods used, degree of use of promotional methods, variety of promotional methods used, amount of professional time devoted to 4-H program responsibilities (4-H PTD's), number of years of professional service to the 4-H program in current county, gender of 4-H professionals, ages of 4-H professionals, and titles of 4-H professionals. All other information was collected from either U.S. Census documentation or Extension ES 237 statistical reports. After a post card reminder and a second mailing was sent to the few non-responding counties, a final return rate of 100 percent was attained.

The instrument consisted of three sections. Section one, entitled "Promotional Methods Used In Your County", consisted of a list of 45 promotional methods/media used to present information about the 4-H program. The 45 items were organized by the four categories of promotional methods that can make up a promotion mix for an organization: publicity, advertising, personal selling, and sales promotion. Respondents were asked to indicate the degree to which each promotional method/medium had been used in their counties during the period of October 1, 1985 through September 30, 1986, by circling a corresponding rating score on a six-point Likert-type scale for each. Respondents were also provided the option of circling "NA", indicating that the "Medium/method [was] not used only because it was not available". The "NA" response was not used in calculations, however.

Section two, entitled "Marketing Activities Used In Your County", consisted of a list of 20 marketing activities as applicable to the 4-H program. Respondents were asked to indicate the degree to which each marketing activity had been used in their counties during the period of October 1, 1985 through September 30, 1986, by circling a corresponding rating score on a six-point Likert-type scale for each.

Section three was entitled, "Information About You And Your County", where respondents were asked to report the amount of professional time devoted to 4-H program responsibilities (4-H PTD's), number of years of professional service to 4-H program in current county, gender, ages, and titles of all 4-H professionals working in their counties as of March 1, 1987.

A panel of experts was used to assess the content validity of the instrument and determined that the content purported to be measured in this study had been adequately sampled by the instrument for its intended purposes and population. To establish the reliability of the instrument's results, the questionnaire was pilot tested using a census of a similar population: the 67 county 4-H programs in Pennsylvania. Cronbach's alpha, a measure of the internal consistency of an instrument, was calculated using the SPSS$^x$ computer program for sections one and two of the instrument. Analysis of results of the pilot test yielded Cronbach's alpha coefficients of .92 and .92, respectively. A reliability analysis of the final instrument used in the study was also conducted, yielding coefficients of .90 and .93, respectively.

Descriptive statistics were used to organize and summarize the data. The two states were described separately as well as collectively. Pearson Product Moment correlation coefficients were computed to assess the direction and magnitude of the associations between pairs of selected variables. Scattergrams were plotted to ensure that assumptions of linearity of data distributions and homoscedasticity had been met.

Although this study was a census, inferential statistics were employed since the county 4-H programs studied were considered to represent a sample of 4-H programs and 4-H professionals at a given point in time, and findings could therefore be generalized to future county 4-H programs. Tests of statistical significance were performed at the .05 alpha level, determined a priori. Stepwise multiple linear regression procedures were used to determine the best predictors of the dependent variable, percent of potential youth served by 4-H clubs. The total $R^2$ value was computed to determine the amount of variance in the dependent variable accounted for by the linear combination of independent variables.

## FINDINGS AND CONCLUSIONS

Overall, of the 230 Extension professionals working with 4-H in the 107 counties of the study, two-thirds were female and one-third were male. County Extension professionals working with 4-H averaged 39 years of age. County 4-H programs had an average of eight years of professional service to the 4-H program in the county by 4-H professionals. On the average, counties had one and one-half PTD's working with the 4-H program. (A 4-H PTD is a fraction of a work week of Professional Time Devoted to the 4-H program by Extension professionals, thus similar to the unit, FTE.) Overall, at least one-half of the counties had one full 4-H PTD or more, and county professionals averaged slightly less than a full 4-H PTD each. Of the 230 Extension professionals working with 4-H in the 107 counties in the study, the greatest proportion were county 4-H agents and the smallest proportion were Extension/program associates. An average of nearly 26,000 potential youth per county were available to join 4-H. On the average, eight percent of the potential youth per county were served by 4-H clubs.

Counties had an average of 50 percent of their populations living in urban areas. Counties had an average degree of use of promotional methods score of 2 out of a maximum frequency of use score of 5. Of the 45 promotional methods listed, counties used an average of 27 different items. Counties in both states used at least 15 of the 45 methods listed, with some counties using as many as 40 different promotional methods. Counties had an average degree of use of marketing activities score of 2.4 out of a maximum score of 5. Generally, the least used methods were advertising, particularly television, whereas there were a variety of methods which were most used. Generally, the least used marketing activities were related to long-term planning, identifying and targeting audiences and subsequently, consideration of the needs and interests of potential audiences (not currently involved in 4-H).

Table 1
Degree of Use of Promotional Methods

| Group | N | Mean | SD |
|---|---|---|---|
| New Jersey | 19 | 2.01 | .59 |
| Ohio | 88 | 2.05 | .78 |
| Total | 107 | 2.04 | .75 |
| Md=1.95 | Mo=1.60 | Min=.53 | Max=4.21 |

Table 2
Variety of Promotional Methods Used

| Group | N | Mean | SD |
|---|---|---|---|
| New Jersey | 19 | 25 | 5.7 |
| Ohio | 88 | 27 | 5.8 |
| Total | 107 | 27 | 5.8 |
| Md=27 | Mo=26 | Min=15 | Max=40 |

Table 3
Degree of Use of Marketing Activities

| Group | N | Mean | SD |
|---|---|---|---|
| New Jersey | 19 | 2.15 | .92 |
| Ohio | 88 | 2.46 | .87 |
| Total | 107 | 2.40 | .88 |
| Md=2.40 | Mo=3.25 | Min=.30 | Max=4.65 |

Table 4
Percent of Population Living in Urban Areas per County

| Group | N | Mean | SD |
|---|---|---|---|
| New Jersey | 19 | 75.3 | 22.4 |
| Ohio | 88 | 44.7 | 24.0 |
| Total | 107 | 50.1 | 26.4 |
| Md=47.9 | Mo=0 | Min=0 | Max=100 |

Table 5
Average Number of 4-H PTD's per County

| Group | N | Mean | SD |
|---|---|---|---|
| New Jersey | 19 | 2.4 | 1.18 |
| Ohio | 88 | 1.3 | .66 |
| Total | 107 | 1.5 | .88 |
| Md=1.2 | Mo=1.0 | Min=.25 | Max=5.5 |

Table 6
Average Number of Years of Professional Service to 4-H Program in Current County per County

| Group | N | Mean | SD |
|---|---|---|---|
| New Jersey | 19 | 9.1 | 6.8 |
| Ohio | 88 | 7.2 | 5.3 |
| Total | 107 | 7.6 | 5.6 |
| Md=6.7 | Mo=1 | Min=1 | Max=30 |

Table 7
Percent of Potential Youth Served by 4-H Clubs per County

| Group | N | Mean | SD |
|---|---|---|---|
| New Jersey | 19 | 2.1 | 1.8 |
| Ohio | 88 | 9.3 | 5.2 |
| Total | 107 | 8.1 | 5.5 |
| Md=7.9 | Mo=.46 | Min=.46 | Max=22.3 |

Six research hypotheses were tested. A negligible relationship was found between degree of use of promotional methods and percent of potential youth served by 4-H clubs. However, this relationship was not statistically significant (p>.05). Therefore, Hypothesis 1, "The greater the degree of use of promotional methods, the greater the percent of potential youth served by 4-H clubs" was not accepted.

A negligible negative relationship was found between variety of promotional methods used and percent of potential youth served by 4-H clubs. However, this relationship was not statistically significant (p>.05). Therefore, Hypothesis 2, "The greater the variety of promotional methods used, the greater the percent of potential youth served by 4-H clubs" was not accepted.

A low relationship was found between degree of use of marketing activities and percent of potential youth served by 4-H clubs. However, this relationship was not statistically significant (p>.05). Therefore, Hypothesis 3, "The greater the degree of use of marketing activities, the greater the percent of potential youth served by 4-H clubs" was not accepted.

Table 8
Hypotheses Testing: Pearson Product Moment Correlation Coefficients Representing Relationships of Independent Variables with Percent of Potential Youth Served by 4-H Clubs

| | Independent Variable | r |
|---|---|---|
| 1) | Degree of Use of Promotional Methods | .09 |
| 2) | Variety of Promotional Methods Used | -.10 |
| 3) | Degree of Use of Marketing Activities | .10 |
| 4) | Percent of County Population Living in Urban Areas | -.78* |
| 5) | Amount of Professional Time Devoted to 4-H Program Responsibilities (4-H PTD's) | -.36* |
| 6) | Number of Years of Professional Service to 4-H Program in Current County | .04 |

N = 107 *$p < .05$ where $H_0$: Rho = 0

A very strong negative, statistically significant (p<.05) relationship was found between percentage of a county's population living in urban areas and percent of potential youth served by 4-H clubs. Therefore, Hypothesis 4, "The greater the percentage of a county's population living in urban areas, the lower its percent of potential youth served by 4-H clubs" was accepted.

A moderate negative, statistically significant (p<.05) relationship was found between number of 4-H PTD's serving in a county and percent of potential youth served by 4-H clubs. Since the relationship was negative, Hypothesis 5, "The greater the number of 4-H PTD's serving in a county, the greater the percent of potential youth served by 4-H clubs" was not accepted. Instead, this finding indicates that as the number of 4-H PTD's serving in a county increases, the percent of potential youth served by 4-H clubs would be expected to decrease. However, this variable was later found to be confounded by its relationship with the percentage of a county's population living in urban areas variable.

A negligible relationship was found between average number of years professional service to the 4-H program in the current county by 4-H professionals and percent of potential youth served by 4-H clubs. However, this relationship was not statistically significant ($p>.05$). Therefore, Hypothesis 6, "The greater the average number of years professional service to the 4-H program in the current county by 4-H professionals, the greater the percent of potential youth served by 4-H clubs" was not accepted.

A backward stepwise linear regression analysis was performed to determine the best predictor(s) of the dependent variable, percent of potential youth served by 4-H clubs. All six of the independent variables were entered in the model. Only percent of a county's population living in urban areas remained in the model (at $p<.05$); however, 61 percent of the variance in the dependent variable could be explained by it. Consequently, the following equation provides the best prediction of the dependent variable: Percent of Potential Youth Served by 4-H Clubs = -.163 (% of Population Living in Urban Areas) + 16.2

Table 9
(Backward) Stepwise Multiple Linear Regression of Percent of Potential Youth Served by 4-H Clubs with Independent Variables

| Independent Variable | B | $R^2$ | Partial $R^2$ | # Variables in model |
|---|---|---|---|---|
| Percent of Population Living in Urban Areas | -.163 | .607 | .610* | 1 |
| Number of Years of Professional Service to 4-H program in current county | .101 | .619 | .012 | 2 |
| Number of 4-H PTD's | -.503 | .625 | .005 | 3 |
| Degree of Use of Marketing Activities | .580 | .627 | .003 | 4 |
| Degree of Use of Promotional Methods | -.460 | .630 | .002 | 5 |
| Variety of Promotional Methods Used | .0012 | .630 | .000 | 6 |

N = 107 *$p < .05$ where F = 162.44 (df = 1, 105)

Note: Raw score partial regression coefficients (B values) for all variables but percent urban were calculated with all variables entered in the model. The Y-axis intercept was similarly determined.

## IMPLICATIONS AND RECOMMENDATIONS

Given the very strong negative relationship between the percent of a county's population living in urban areas with 4-H club membership, the urban factor needs to be given much more serious consideration by Extension professionals at all levels in regard to educational programming. If 4-H sincerely intends to be a program for all youth, wherever they live, then major efforts must be made to see that this slogan becomes reality. The needs and interests of youth in urbanized areas must be more clearly determined and responded to with appropriate programming efforts. Furthermore, 4-H must not adhere so strongly to outdated traditions and routine not appropriate for attracting youth of the 1980's to a program which sometimes might be accused of perpetuating only the memories of farm-based audiences of prior generations.

In regard to promotion efforts, this study has suggested that the mere frequency of use of promotional methods will not be effective in attaining goals of promotion. The quality of promotion efforts is more likely to be a factor. Therefore, promotion must communicate an accurate, up-to-date, and appropriate image of the 4-H program. Although a variety of delivery modes must be considered and used where appropriate, the 4-H club option should not be routinely disregarded as a suitable means to reach youth in urbanized areas. Long-term planning was one of the lowest-rated areas of marketing activities used. This type of planning may help the program be better prepared in advance to meet diverse clientele needs. Promotion of the program will be in vain if 4-H doesn't have something relevant to offer. In regard to quality use of promotional methods, 4-H professionals may need on-job training along with training in the use of marketing activities.

This study only looked at the frequency of use of promotional methods. The quality of promotion needs to be looked at also. Furthermore, this study only examined the relationship of use of promotional methods and marketing activities with percent of potential youth served by 4-H clubs. The relationships of the independent variables included in this study with other dependent variables such as percent of youth served by the 4-H program (by all delivery modes) and 4-H program quality should also be investigated. Last, this study should be continued over a greater time period to allow relationships with the dependent variable to have a better chance to manifest themselves.

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# INSTRUCTIONAL PROGRAM, SOEP AND FFA QUALITY AND FACTORS RELATED TO QUALITY

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## INTRODUCTION

A quality vocational agriculture program is associated with three fundamental components, the instructional program (classroom and laboratory instruction), the supervised occupational experience program (SOEP) and the Future Farmers of America (FFA) (Newcomb, McCracken and Warmbrod, 1986). The interrelationship of these components has been demonstrated in writings, paradigms and action countless times in the last 60 years. Yet, how can one measure the quality of the instructional program, SOEP and FFA, and just as important, what factors are related to same?

Past research has defined the concept of program quality narrowly as instructional effectiveness and has measured this construct using standardized achievement tests. This approach ignores the variety of school goals and yields measures of school effectiveness that are invalid and unreliable (Rowan, Bossert, and Dwyer, 1983). Mackenzie (1983) presented another view in stating that there is seldom clear agreement on the precise definition of constructs and variables measuring school effectiveness. Vocational agriculture education has attempted to resolve the issue of measuring school effectiveness through the development of program standards suitable for assessing program quality. The Standards for Quality Vocational Programs in Agriculture/Agribusiness Education (1977) were developed through a series of national meetings of state supervisors, teacher educators and vocational agriculture teachers. These standards were developed by the profession to serve as a model against which all existing agriculture/agribusiness programs and activities can be evaluated.

Many factors have been identified as affecting program quality in vocational agriculture in secondary school systems. Those factors include teacher characteristics (Dunathan, 1980; Murrary, 1980) the funding of the program (Walters, 1986; Johns, Morphet, and Alexander,1983), and characteristics of the school (Eberts, Kehoe, Stone,1984).

## PURPOSES AND OBJECTIVES

This study was designed to answer the following questions:

1. What is the level of instructional program, SOEP and FFA quality in secondary vocational agriculture programs in the United States as measured by the Standards for Quality Vocational Programs in Agriculture and Agribusiness Education through the perceptions of the teachers of vocational agriculture ?

2. What is the relationship between the perceived level of instructional program, SOEP and FFA quality and the following selected program variables?
   A. Teacher variables
      1. Degree major at the beginning of the teaching career
      2. Level of education achieved
      3. Type of institution granting highest degree
      4. Recentness of earning highest degree
      5. Years of teaching experience
   B. Characteristics of the school
      1. Type of high school
      2. Number of teachers in the department
      3. Number of students in the vocational agriculture program
      4. Number of students in the high school
      5. Percent of time spent teaching high school vocational agriculture
      6. Percent of rural, suburban and urban students in vocational agriculture program
   C. Fiscal support for the vocational agriculture program
      1. Vocational agriculture teacher's annual salary based upon the percent of time spent teaching vocational agriculture
      2. Total level of financial support for instructional materials, new equipment, consumable supplies, travel and inservice.

## PROCEDURES

The target population for this study was all high school vocational agriculture programs in the public schools of the United States during the 1986-87 school year. The list of programs came from the 1986 Agriculture Teachers Directory published annually by Smith Publications. To achieve a representative sample, the formula for estimating sample size developed by Cochran (1977) was used. From a population of 11,750 high school teachers a sample of 567 was randomly drawn.

The design for this study was correlational. To maximize the strengths and control for the weaknesses in the survey approach to research the Total Design Method was utilized (Dillman, 1978).

An instrument to assess instructional program, SOEP and FFA quality was developed by the researcher based upon the Standards for Quality Vocational Programs in Agriculture/ Agribusiness Education. The instrument was reviewed by faculty members of the Department of Agricultural Education at The Ohio State University and by the Ohio Agriculture Education Service state supervisory staff to assure content validity. The instrument was field tested to establish reliability and face validity. The field test was based on a random sample of vocational agriculture programs not selected to participate in the study and conducted in a manner as close to the final format as possible. Utilizing Cronbach's Alpha, reliability for the instructional program, SOEP and FFA was .79, .82 and .77 respectively.

The instrument was divided into three sections. Part I consisted of 26 items regarding instructional program, SOEP and FFA quality that required the teacher to rate their program in comparison to other vocational agriculture programs in the state. A Likert-type scale was used with 5 equal to excellent in comparison to other programs in the state, 4 equal to much better than other programs in the state, 3 equal to about the same as other programs in the state, 2 equal to not as good as other programs in the state, and 1 representing much worse when compared to other programs in the state. Part II contained 19 statements regarding instructional program, SOEP and FFA quality asked the teacher to indicate if the statement was true for his/her program. A YES response was coded as a 5 and the NO response was coded as a 1. The final part of the instrument quantified the three categories of independent variables teacher characteristics, school characteristics, and program funding.

## RESULTS

Of the 567 high school vocational agriculture teachers sampled, 394 questionnaires (69%) were returned. Since a comparison of the early and late respondents found no significant difference and since late respondents are similar to non-respondents, generalization can be made to the entire sample (Miller and Smith, 1983).

The average vocational agriculture teacher held a bachelor's degree with a major in agricultural education from a land grant institution. The teacher had been teaching for 11 years in a single teacher department with 86 students in a comprehensive high school with 177 students per grade. The average high school vocational agriculture program is composed of 51% rural, 28% suburban and 21% urban students. The average teacher teaches vocational agriculture 90% of the school day, earns an average salary of $27,000, and has approximately $400 per year for instructional materials, consumables, new equipment, and travel.

### Instructional Program, SOEP and FFA Quality

The perceived level of instructional program, SOEP and FFA program quality scores were 4.33, 3.97 and 3.80 respectively on a five point scale of 5=excellent when compared to other programs in the state and 1=much worse than other programs in the state (see Table 1).

Table 1

Number of Questions, Mean Score and Standard Deviation of Instructional Program, SOEP and FFA Quality as Perceived by the Vocational Agriculture Teacher (n=356)

| Quality Categories | Number of Items | Mean[a] Score | Standard Deviation |
|---|---|---|---|
| Instructional Program | 23 | 3.97 | 0.44 |
| Supervised Occupational Experience Program | 14 | 3.50 | 0.65 |
| Future Farmers of America | 6 | 3.48 | 0.98 |

[a]Scale:
5 - excellent when compared to other programs in the state
4 - much better than other programs in the state
3 - about the same as other programs in the state
2 - not as good as other programs in the state
1 - much worse than other programs in the state

### Relationship Between Instructional Program Quality and Selected Variables

The appropriate correlation coefficient was calculated between instructional program quality and each of the selected variables (see Table 2). Utilizing the conventions of Davis (1971), a low statistically significant association was found between the perceived level of quality of the instructional program and type of institution awarding the highest degree ($r_s$=.11), years of teaching experience (r=.19), responsibility for adult education in agriculture ($r_s$=.23), number of teachers in the vocational agriculture department (r=.13), number of students in the vocational agriculture program (r=.12), and number of students per grade in the school (r=.13). A low statistically significant association was found between instructional program quality and the percent of the school day spent teaching vocational agriculture (r=.11) and the salary of the vocational agriculture teacher (r=.19). A negligible statistically significant association was found between instructional program quality and recentness of earning the highest degree (r=.09). No statistically significant association was found between instructional program quality and college major, degree achieved, type of school where vocational agriculture program is located, amount of resources available per teacher and the percent of rural, suburban and urban students in the vocational agriculture program

Table 2

Relationship Between Instructional Program Quality and Selected Variables (n=356)

| Instructional Program Quality By: | r | $r_s$ |
|---|---|---|
| College major | | .02 |
| Degree level achieved | | .03 |
| Type of institution awarding highest degree | | -.11* |
| Recentness of achieving highest degree | .09* | |
| Years of high school vo ag teaching experience | .19* | |
| Teacher's instruction of adults | | .23* |
| Type of school where vo ag program is located | | -.02 |
| Number of teachers in the department | .13* | |
| Number of students in the vo ag program | .12* | |
| Number of students in each grade of the high school | .13* | |
| Percent of school day spent as a vo ag teacher | .11* | |
| Percent of rural students in the vo ag program | .08 | |
| Percent of suburban students in the vo ag program | .03 | |
| Percent of urban students in the vo ag program | .07 | |
| Teacher's salary based on teaching vo ag | .19* | |
| Amount of resources available per teacher | .01 | |

* $p < .05$

## Relationship Between SOEP Quality and Selected Variables

A low statistically significant association was found between the perceived level of SOEP quality and the following teacher, school and fiscal variables (see Table 3); type of institute awarding highest degree ($r_s$=.11), years of teaching experience (r=.17), and responsibility for adult education in agriculture ($r_s$=.21). Similarly, a low statistically significant association was found between SOEP quality and the number of teachers (r=.17), percent of school day spent teaching vocational agriculture (r=.16), percent of urban students (r=.14) and salary of the vocational agriculture teacher (r=.21.) A negligible statistically significant association was found between SOEP program quality and recentness of graduation (r=.09) and percent of rural students (r=-.09). A statistically significant association was not found between SOEP program quality and college major, degree level achieved, type of school where the vocational agriculture program is located, number of students in the vocational agriculture program, number of students in each grade of the high school, percent of suburban students in the vocational agriculture program and the amount of resources available per teacher.

Table 3

Relationship Between SOEP Quality and Selected Variables (n=356)

| SOEP Quality By: | r | $r_s$ |
|---|---|---|
| College major | | -.06 |
| Degree level achieved | | .03 |
| Type of institution awarding highest degree | | -.11* |
| Recentness of achieving highest degree | .09* | |
| Years of high school vo ag teaching experience | .17* | |
| Teacher's instruction of adults | | .21* |
| Type of school where vo ag program is located | | .07 |
| Number of teachers in the department | .17* | |
| Number of students in the vo ag program | .06 | |
| Number of students in each grade of the high school | .08 | |
| Percent of school day spent as a vo ag teacher | .16* | |
| Percent of rural students in the vo ag program | -.09* | |
| Percent of suburban students in the vo ag program | .01 | |
| Percent of urban students in the vo ag program | .14* | |
| Teacher's salary based on teaching vo ag | .21* | |
| Amount of resources available per teacher | .01 | |

* $p < .05$

### Relationship Between FFA Quality and Selected Variables

The perceived level of FFA program quality was found to have a low statistically significant association with college major ($r_s$=-.13), educational level ($r_s$=.10), years teaching (r=.15), and responsibility for adult education ($r_s$=-.17) (see Table 4). A low statistically significant association was found between FFA program quality and the type of school where program was located ($r_s$=.17), percent of school day spent teaching vocational agriculture (r=.21) and salary of the vocational agriculture teacher (r=.25).

Table 4

Relationship Between FFA Quality and Selected Variables (n=356)

| FFA Quality By: | $r$ | $r_s$ |
|---|---|---|
| College major | | -.13* |
| Degree level achieved | | .10* |
| Type of institution awarding highest degree | | -.05 |
| Recentness of achieving highest degree | .03 | |
| Years of high school vo ag teaching experience | .15* | |
| Teacher's instruction of adults | | -.17* |
| Type of school where vo ag program is located | | .17* |
| Number of teachers in the department | .06 | |
| Number of students in the vo ag program | -.08 | |
| Number of students in each grade of the high school | -.04 | |
| Percent of school day spent as a vo ag teacher | .21* | |
| Percent of rural students in the vo ag program | .01 | |
| Percent of suburban students in the vo ag program | -.07 | |
| Percent of urban students in the vo ag program | .07 | |
| Teacher's salary based on teaching vo ag | .25* | |
| Amount of resources available per teacher | .03 | |

* $p < .05$

## Association Commonalities

Seven variables were found associated to at least two of the three vocational agriculture components instructional program, SOEP and FFA (see Table 5). The four variables years of teaching experience, responsibility for adult education in agriculture, percent of school day spent teaching vocational agriculture and teacher's salary were found related to the perceived level of instructional program, SOEP and FFA quality. The type of institute awarding the highest degree, recentness of graduation and number of teachers in the vocational agriculture department were found related to instructional program quality and SOEP quality.

Table 5

Variables Found Association With At Least Two of the Three Vocational Agriculture Components

| | Instructional Program | SOEP | FFA |
|---|---|---|---|
| Years teaching experience | X | X | X |
| Responsibility for adult educ | X | X | X |
| % of school day spent teaching vo ag | X | X | X |
| Teacher's salary | X | X | X |
| Type of institute awarding degree | X | X | |
| Recentness of graduation | X | X | |
| Number of teachers in the vo ag dept | X | X | |

## CONCLUSIONS AND RECOMMENDATIONS

Past theory and research has identified the three major components of the vocational agriculture as instructional program, SOEP and the FFA program. Teachers rated instructional program quality at 3.97 on the five point scale of 5 equal to excellent when compared to other programs in the state and 1 equal to much worse than other programs in the state. Utilizing the same scale, SOEP received a score of 3.50 and the FFA program received a score of 3.48.

Seven variables were found associated with two or more of the three components of the vocational agriculture program. Conclusions and recommendations are centered on these seven variables.

The salary of the vocational agriculture teacher was found to have a low association to instructional program, SOEP and FFA quality. It appears that those teachers with the higher salaries perceive a greater level of quality in these three important components of the vocational agriculture program. Continued support of teacher's salaries must be petitioned in the interest of quality instructional, SOEP and FFA programs.

As the low association demonstrates, instructional programs, SOEP and FFA program quality are related to the percent of the school day spent teaching vocational agriculture. According to the perceived level of quality in these three components, teachers with greater responsibilities for teaching high school vocational agriculture have the opportunity to provide a greater level of instructional program, SOEP and FFA quality. Teachers with less opportunity should be supported by teacher education and state supervision with courses and inservice instruction to maximize the potential of the instructional program, SOEP and FFA programs.

A low association was identified between instructional program, SOEP and FFA quality and the years of teaching experience. To assure continued excellence, teachers must be encouraged to remain in the profession and recognized for their accomplishments. State Departments of education and local educational agencies must acknowledge this relationship and lobby for a fiscal and professional recognition system that will encourage teacher longevity.

The vocational agriculture teacher's responsibility for adult education in agriculture was found to be related to instructional program, SOEP and FFA program quality. In the case of instructional program and SOEP, the greater the responsibility for adult education in agriculture, the higher the perceived level of quality. Teachers with a higher perceived level of FFA program quality were found associated with less responsibility for adult education in agriculture. Cognizant of the continued debate about the responsibility for adult education in agriculture, the contradictory relationship identifies an area of further research in agriculture education.

A low, negative association was found between instructional program quality and SOEP and the type of institution awarding the highest degree. The negative association indicates that teachers earning the highest degree from non-land grant colleges perceived a higher level of instructional program and SOEP quality. A comparison of land grant and non-land grant college curricula and type of student enrolled is recommended for further study in agricultural education.

A low association was identified between instructional program quality and SOEP quality and the variable recentness of graduation. The longer the period of time since earning the highest degree, the greater the perceived level of instructional program and SOEP quality. This finding supports the association between years of teaching experience and instructional program, SOEP and FFA program quality.

The number of teachers in the vocational agriculture program was found to be positively related to instructional program quality and SOEP quality. This demonstrates that the continued comparison of single and multiple teacher programs in the area of instructional program and SOEP gives the advantage to the larger departments. Multiple teacher programs appear to have the advantage in providing higher levels of instructional program quality and SOEP quality.

Expectations for quality vocational agriculture programs should be tempered with knowledge of those factors found related to the perceived level of instructional program, SOEP and FFA quality.

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# ASSESSING THE EDUCATIONAL TRAINING NEEDS OF VOLUNTEER 4-H LEADERS IN INDIANA

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## INTRODUCTION

The 4-H program was built upon the need to educate the farm population on the new technologies and practices in agriculture. The educational principle that was, and still is, utilized to meet the educational objectives of 4-H is learning by doing.

Although the educational emphasis of 4-H has been consistent from its beginning, the leadership has changed from professional educators, school superintendents, and teachers to extension staff and volunteer leaders. Volunteer leaders are an essential, irreplaceable component of the 4-H program. Wessel and Wessel (1982) stated that "volunteer leaders had been central to the success of 4-H club work since its inception" (p. 126). Acknowledging the change of 4-H leadership from teachers to volunteers, a need for leader training became apparent. Wessel and Wessel reported that as early as 1919, volunteer 4-H leaders recognized the need to receive proper training in working with youth.

The need for leader training still exists and always will, as long as there are volunteer 4-H leaders. Although 4-H leader training may vary from county to county or state to state, all 4-H leader training programs should include the preparation of leaders to work with young people by utilizing the educational principle of learning by doing. Astroth (1985) recognized the challenge of training 4-H leaders to use group-building techniques and to expand the use of teaching methods. Astroth stated that we have much to do to enhance the quality of youth experiences through the incorporation of the strategies which place the project leader in the role of facilitator, but he declared that we are headed in the right direction.

## PURPOSE AND OBJECTIVES

It is clear from the review of literature that volunteer 4-H leader training is needed and wanted. The leader training should be made appropriate for leaders by capitalizing on the motivational and educational needs of the leaders being trained. Awareness and identification of the leaders' need is crucial. Cook, Kiernan, and Ott (1986) recommended the surveying of volunteers to determine the training they want, rather than relying on perceptions of what one thinks volunteers want. According to Astroth (1985), "the use of group-building techniques in project meetings and the expansion of types of teaching techniques that are used in project meetings, present one of our biggest challenges in the years ahead" (p. 23). Leaders' needs must be assessed in order to provide them with the knowledge, skills, and experiences necessary to effectively direct the dynamic, informal, educational program for young people called 4-H.

This master's thesis study was designed to assess the educational training needs of volunteer 4-H leaders in Indiana. The objectives of the study were to:

1. Determine the knowledge, confidence, and willingness of volunteer 4-H leaders to use specific educational activities in their local 4-H clubs.

2. Determine the perceptions of volunteer 4-H leaders on importance and knowledge of identified roles and confidence and willingness to perform identified roles of 4-H volunteers.

3. Make recommendations concerning the preparation of volunteer 4-H leaders.

4. Make recommendations concerning the training programs being offered to volunteer 4-H leaders.

## PROCEDURES

The research design for this study was descriptive survey. The population for this study was volunteer 4-H leaders from throughout the state of Indiana. The sample population included all volunteer 4-H leaders that attended the 1986 Indiana 4-H Leaders Conference.

The questionnaire, developed by the researcher, consisted of six sections. Section I of the questionnaire asked volunteer 4-H leaders to provide demographic information about themselves and their volunteering. This section included an open-ended question for leaders: Why did you become a 4-H leader?

Section II of the questionnaire asked volunteer 4-H leaders about their goal(s) in attending the State 4-H Leaders Conference. The goals listed on the questionnaire for attending the conference were:

1. To improve leadership abilities.
2. To improve knowledge about youth and 4-H.
3. To improve attitude about 4-H.
4. To acquire new activities to implement the local 4-H club.

Section III of the questionnaire inquired about the use of educational activities by volunteer 4-H leaders. This section included the number of times an activity was used in the past year and ratings for a leader's knowledge about each activity, a leader's confidence in using each activity, and a leader's willingness to use each activity. A four-point scale from low (1) to high (4) was used to measure these variables.

The educational activities for Section III were drawn from a review of literature. The educational activities included on the questionnaire were demonstrations, discussion groups, field trips, games, judging activities, outside speakers, quiz bowl, role playing, show and tell, and written activities. These educational activities were chosen because they follow the educational principle of learning by doing.

Section IV of the questionnaire asked volunteer 4-H leaders about 4-H. The responses for this section were based on a four-point scale from strongly agree (1) to strongly disagree (4). This section was divided into two areas:

1. The main purpose of 4-H.
2. The purpose of a 4-H club meeting.

Section V of the questionnaire asked volunteer 4-H leaders for their opinions about 4-H leader roles. This section included the importance of each role, the leader's knowledge of each role, the leader's confidence in performing each role, and the leader's willingness to perform each role.

The roles for Section V were drawn from a review of literature. The roles included on the questionnaire were teaching children, motivating children, developing enthusiasm, working with officers, organizing meetings, working with parents, communicating with the 4-H office, rewarding children, and using new activities. Leaders were asked to respond on a four-point scale from low (1) to high (4) for importance, knowledge, confidence, and willingness for each role.

Section VI of the questionnaire was an open-ended question to allow volunteer 4-H leaders to comment on leader training.

The entire instrument was reviewed for conciseness, clarity, and validity by faculty members at Purdue University, and it was field tested by eight volunteer 4-H leaders in Indiana. Comments and remarks were compiled and used to develop the final questionnaire. A reliability check on the questionnaire revealed a Cronbach Alpha reliability of .936.

## Data Collection and Analysis

A list of names and addresses of all volunteer 4-H leaders attending the 1986 Indiana 4-H Leaders Conference was obtained from the Indiana 4-H Department at Purdue University in West Lafayette, Indiana. A one page cover letter was prepared with the cooperation of the Indiana 4-H faculty at Purdue University. The cover letter provided the final details about the 4-H Leaders Conference and explained the purpose and importance of the study. The cover letter and questionnaire were sent to the volunteer 4-H leaders on November 13, 1986.

The questionnaires were returned by the 4-H leaders when they registered at the conference. A total of 204 instruments were returned, one of which was blank because the leader was beginning in 1987. With the elimination of the blank instrument from the study, 64.4% of the instruments issued were returned and usable. A follow-up was not conducted because the Indiana 4-H faculty was doing a comparative analysis of before and after the conference; therefore, only surveys that were completed before attending the conference were desired.

## RESULTS

Descriptive information collected in Section I of the questionnaire revealed that the majority of volunteer 4-H leaders (78.2%) had lived in their county for 16 or more years. The majority (51%) of the leaders attending the Indiana 4-H Leaders Conference have been leaders for 5 years or less. The majority of the leaders (51.7%) were between the ages of 36 and 45 years of age, 87.6% were female, and 52.7% were 4-H members for 6 to 10 years, while 29.1% of the leaders were never 4-H members. Approximately 51% of the leaders had a high school education or less. The data also indicated that 33.3% of the 4-H leaders were employed as skilled laborers, 31.2% of the 4-H leaders were homemakers, and 22% of the 4-H leaders were professionals. The majority of 4-H leaders (69.7%) had attended 0 to 2 county leader training activities while 13.1% of the 4-H leaders had no county leader training activities offered to them.

Section II of the questionnaire asked leaders to identify their goals in attending the Indiana 4-H Leaders Conference. Table 1 shows that 87.6% of the volunteer 4-H leaders attending the conference wanted to improve their leadership abilities and 82.2% of the volunteer 4-H leaders attending the conference wanted to acquire new activities to implement in their local clubs.

Table 1
Volunteer 4-H Leaders' Goals in Attending
the 1986 Indiana 4-H Leaders Conference[a]
N=202

| Goals | n | % |
|---|---|---|
| Improve leadership abilities | 177 | 87.6 |
| Improve knowledge about youth and 4-H | 135 | 66.8 |
| Improve attitude about 4-H | 57 | 28.2 |
| Acquire new activities | 166 | 82.2 |

[a] Volunteer leaders were allowed to check more than one response.

The purpose of Section III of the questionnaire was to identify the use of specific educational activities and the knowledge, confidence, and willingness that leaders possess in relation to each educational activity. The results of Section III are seen in Table 2. Table 2 reveals that demonstrations with a mean of 8.0 were the most often used educational activity by volunteer 4-H leaders during the past year. Games were second with a mean of 6.4, followed by discussion groups with a mean of 4.0. The least often used educational activity was quiz bowl with a mean of 0.5. It is interesting to note that while 4-H leaders were above average in their knowledge, confidence, and willingness to use field trips and outside speakers, these activities were used less often than the majority of educational activities. The results in Table 2 reveal that volunteer 4-H leaders were willing to use most of the educational activities. However, quiz bowl, role playing, and written activities had means of 2.4 or lower indicating the willingness to use these activities was nearly below average. All other educational activities were rated above average (2.9-3.3) for willingness to use. This table also shows that leaders rated willingness to use higher than knowledge about activity and confidence in use for each activity.

Table 2
Mean Scores of Volunteer 4-H Leaders' Knowledge, Confidence, and Willingness to Use Specific Educational Activities[a]

| Educational activities | Times used | Knowledge about activity | Con.[b] in use | Will.[b] to use |
|---|---|---|---|---|
| Demonstrations (N=174) | 8.0 | 2.9 | 3.0 | 3.3 |
| Discussion groups (N=163) | 4.0 | 2.7 | 2.7 | 3.0 |
| Field trips (N=163) | 1.5 | 2.8 | 3.0 | 3.1 |
| Games (N=163) | 6.4 | 2.7 | 2.8 | 3.0 |
| Judging activities (N=166) | 2.3 | 2.5 | 2.7 | 3.0 |
| Outside speakers (N=161) | 1.5 | 2.6 | 2.9 | 3.1 |
| Quiz Bowl (N=150) | 0.5 | 1.8 | 2.0 | 2.4 |
| Role playing (N=150) | 0.6 | 2.0 | 2.1 | 2.3 |
| Show and tell (N=156) | 3.5 | 2.7 | 2.7 | 2.9 |
| Written activities (N=152) | 2.2 | 2.1 | 2.3 | 2.4 |

[a] For knowledge, confidence, and willingness: low=1, below average=2, above average=3, and high=4.
[b] Con.=Confidence and Will.=Willingness.

Section IV of the questionnaire asked leaders to respond by providing their beliefs about the purpose of 4-H and the purpose of a 4-H club meeting. The results of Section IV are seen in Tables 3 and 4. Table 3 displays volunteer 4-H leaders' perceptions of the purpose of 4-H. This table shows that 89% of the leaders strongly agreed that 4-H is to provide opportunities for children to learn, 63.1% of the leaders agreed or strongly agreed that 4-H is to provide opportunities for children to compete, 77.9% of the leaders strongly agreed that 4-H is to provide opportunities for children to develop leadership skills, and 57.1% of the leaders strongly agreed that 4-H is to provide opportunities for children to make new friends.

Table 3
Volunteer 4-H Leaders' Perceptions
of the Purpose of 4-H[a]
N=198[b]

I believe the main purpose of 4-H is to provide

| Item | Strongly agree | Agree | Disagree | Strongly disagree | Mean |
|---|---|---|---|---|---|
| Learning opportunities | 89.0% | 11.0% | 0.0% | 0.0% | 1.1 |
| Competition opportunities | 19.5% | 43.6% | 25.6% | 11.3% | 2.3 |
| Leadership development opportunities | 77.9% | 21.6% | 0.5% | 0.0% | 1.2 |
| Making new friends opportunities | 57.1% | 40.9% | 1.5% | 0.5% | 1.5 |

[a] Strongly agree=1, Agree=2, Disagree=3, and Strongly disagree=4.
[b] Volunteer leaders were allowed to check more than one item.

Table 4 displays volunteer 4-H leaders' perceptions of 4-H club meetings. This table reveals that 84.2% of the leaders agreed or strongly agreed that a 4-H club meeting should be a social time for children, 70.4% of the leaders strongly agreed that a 4-H club meeting should be a learning time for children, 89.8% of the leaders agreed or strongly agreed that a 4-H club meeting should be a work and practice time for children, 79.8% of the leaders agreed or strongly agreed that a 4-H club meeting should be a teaching time for leaders, and 88.6% of the leaders agreed or strongly agreed that a 4-H club meeting should be a time for involving parents in 4-H.

Table 4
Volunteer 4-H Leaders' Perceptions
of 4-H Club Meetings[a]
N=194[b]

I believe a 4-H club meeting should be a

| Item | Strongly agree | Agree | Disagree | Strongly disagree | Mean |
|---|---|---|---|---|---|
| Social time | 18.4% | 65.8% | 13.3% | 2.5% | 2.0 |
| Learning time | 70.4% | 29.6% | 0.0% | 0.0% | 1.3 |
| Work and practice time | 41.6% | 48.2% | 10.2% | 0.0% | 1.7 |
| Teaching time | 26.1% | 53.7% | 16.5% | 3.7% | 2.0 |
| Parent involvement time | 37.8% | 50.8% | 9.3% | 2.1% | 1.8 |

[a] Strongly agree=1, Agree=2, Disagree=3, and Strongly disagree=4.
[b] Volunteer leaders were allowed to check more than one item.

## 4-H Leaders' Perceptions of Their Leadership Roles

Section V of the questionnaire asked leaders to provide their opinions about 4-H leaders' roles. The results of Section V are seen in Table 5. Table 5 reveals that overall mean scores of roles performed by volunteer 4-H leaders on the variables importance of role and willingness to perform were higher than mean scores for the variables knowledge about role and confidence in performing.

Table 5
Role Perceptions of Volunteer 4-H Leaders[a]
N=189[b]

| Roles | Importance of role | Knowledge about role | Confidence in performing | Willingness to perform |
|---|---|---|---|---|
| | X | X | X | X |
| Teaching children | 3.5 | 3.0 | 3.0 | 3.4 |
| Motivating children | 3.5 | 2.8 | 2.8 | 3.3 |
| Developing enthusiasm | 3.5 | 2.8 | 2.8 | 3.3 |
| Working with officers | 3.4 | 3.0 | 3.0 | 3.3 |
| Organizing meetings | 3.3 | 3.0 | 3.0 | 3.3 |
| Working with parents | 3.3 | 2.8 | 2.8 | 3.2 |
| Communicating with 4-H office | 3.4 | 3.1 | 3.2 | 3.4 |
| Rewarding children | 3.3 | 3.0 | 3.0 | 3.3 |
| Using new activities | 3.4 | 2.9 | 2.9 | 3.3 |

[a] For importance, knowledge, confidence, and willingness: low=1, below average=2, above average=3, and high=4.
[b] Volunteer leaders were allowed to check more than one item.

## CONCLUSIONS AND/OR RECOMMENDATIONS

The purpose of this study was to assess the educational training needs of volunteer 4-H leaders in Indiana. The data collected from the volunteer 4-H leaders attending the 1986 Indiana 4-H Leaders Conference proved to be valuable in meeting the study's purpose and satisfying the study's objectives.

Results of this study support the idea that volunteer 4-H leader training is needed and wanted. The fact that the overwhelming majority of 4-H leaders were attending the conference in order to improve their leadership abilities and to acquire new activities to implement in their local clubs supports their desire to receive training. The fact that the vast majority of 4-H leaders have attended two or less state leaders conferences and that 42.4% of the volunteer 4-H leaders had not attended a county leader training activity supports the need for volunteer 4-H leader training. The wants and needs for volunteer 4-H leader training must be addressed in order for 4-H to remain a viable, educational organization for young people.

Educational activities are the tools that volunteer 4-H leaders can use to teach, but they are worthless without the knowledge, confidence, and willingness necessary to use them. This fact is obviously demonstrated by the data for quiz bowl and role playing. Quiz bowl and role playing were the least often used educational activities with the lowest mean scores for knowledge about them, confidence in using them, and willingness to use them. Conversely, demonstrations were the most often used educational activity with the highest mean scores for knowledge, confidence, and willingness.

The fact that volunteer 4-H leaders are willing to use educational activities, despite their perceived lack of knowledge and confidence, is very encouraging. Volunteer 4-H leaders have revealed their willingness to use educational activities; therefore, they need to be provided with the skills necessary for them to fully utilize educational activities. Volunteer 4-H leaders need to be presented with knowledge related to various educational activities, as well as being presented with opportunities to develop confidence in using educational activities.

In regard to 4-H leaders' perceptions of the purpose of 4-H, the overwhelming majority of 4-H leaders strongly agreed that 4-H is to provide opportunities for children to learn and to develop leadership skills. The majority of volunteer 4-H leaders strongly agreed that 4-H club meetings should be a learning time for children. Volunteer 4-H leaders do recognize that young people are to learn through their involvement in 4-H. In order for 4-H youth to learn, volunteer 4-H leaders must teach, but only 26.1% of the 4-H leaders strongly agreed that a 4-H club meeting is a teaching time. Volunteer 4-H leaders need to be taught to view themselves as teachers, and they need to be provided with the tools necessary for them to teach.

This study was intended as preliminary research. The data collected will give state 4-H specialists and researchers a place to begin. A recommended study would be to survey a representative sample of all 4-H volunteers using the same questionnaire. Data gathered would then be compared to the results from this study to determine if there is a difference between the leaders that attended a state leaders conference and the leaders that did not.

Questions that were left unanswered by this research that merit further study are: Why were field trips and outside speakers used less often than the majority of educational activities, when volunteer 4-H leaders were above average in their knowledge, confidence, and willingness to use them, and why did 70.4% of the volunteer 4-H leaders strongly agree that a 4-H club meeting should be a learning time, while only 26.1% of the volunteer 4-H leaders strongly agreed that a 4-H club meeting should be a teaching time. Do volunteer 4-H leaders recognize that they should learn how to teach and perform their roles as part of their responsibility as a volunteer 4-H leader, and do extension agents have the training needed to teach volunteer 4-H leaders how to teach?

This study shows that volunteer 4-H leader training is needed and wanted. A needs assessment should be utilized in order to determine what specific training volunteer 4-H leaders want and need. A needs assessment should allow trainers of volunteer 4-H leaders to meet the educational training needs of 4-H leaders.

In order for changes in volunteer 4-H leader training to occur, the people responsible for the training must recognize the need for change. State 4-H faculty members need to help both extension agents and volunteer 4-H leaders perceive themselves as teachers and develop teaching skills. State 4-H faculty members and extension agents need to utilize training strategies that provide for learning by doing to allow volunteer 4-H leaders to gain knowledge and develop confidence at the same time. Training programs for 4-H leaders should focus on the establishment of the concept that 4-H leaders are teachers and on how to lead and teach using various educational activities during 4-H club meetings.

Extension agents need to realize the imperative role that they play in volunteer 4-H leader training. Extension agents need to prepare volunteer 4-H leaders to lead by educating, rather than facilitating. Extension agents need to serve as a resource for 4-H leaders by providing them with the tools, ideas, and experiences necessary for the leaders to teach young people.

Teacher educators and teachers are two groups of professionals that could serve as excellent resources for 4-H leader training. Teacher educators could offer classes or workshops at the state level for state 4-H faculty, extension agents, and 4-H volunteers, and local teachers could conduct workshops for volunteer 4-H leaders at the county level. Leader training conducted by professional educators should facilitate development of teacher perception needed by extension agents and volunteer 4-H leaders.

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# A CRITIQUE

# The Relationship of Marketing Activities and Promotional Methods Used with County 4-H Club Membership in New Jersey and Ohio

by

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42nd ANNUAL CENTRAL STATES RESEARCH CONFERENCE IN
AGRICULTURAL EDUCATION

Sheraton Plaza Chicago
Chicago, Illinois
February 22, 1988

First of all, it is appropriate to recognize Dr. Fred Reneau for planning an excellent research conference. He has done a fantastic job in organizing the conference.

In the next several minutes, I have the responsibility to provide a reaction to the presentation we have just heard. In preparing my reaction, I used the evaluation items forwarded to me by Dr. Reneau.

Significant Impact on the Agricultural and Extension Education Profession. This research "The Relationship of Marketing Activities and Promotional Methods Used with County 4-H Club Membership in New Jersey and Ohio" is very significant to the 4-H programs and has implications for the Future Farmers of America Organization (FFA). Based on what I observed in the paper relative to the review of literature and research, this could very well be the first time an in-depth study of this nature has been done. I must admit that most of the 4-H promotional methods and marketing activities I've seen have been well done. The television advertisements I've seen appear to be equally as good or better than the advertisements of major corporations. This is a compliment to the 4-H professional staff. In light of all the 4-H promotional methods and marketing activities, the researchers have raised an important question. The question "which ones, individually or in combination, have been most effective in attaining a high level of 4-H membership within the counties and states studied?" is very significant to the profession. This study is very timely because one would think that if 4-H is going to serve larger populations, it needs to know what resources and efforts are likely to give the greatest returns.

Contributions to Further Research. This research could be used as a model for conducting similar research between a consortium of states, a regional or national study. The researchers acknowledged that this study only looked at the frequency of use of promotional methods and have recommended that the quality of promotion and other related factors should be examined. This research could have short and long-term impact on 4-H programs. For example, Hypothesis 4 which states "The greater the percentage of a county's population living in urban areas, the lower its percent of potential youth served by 4-H clubs", was the only hypothesis accepted. Simply stated, the Extension profession should give a high priority to serving the needs of urban students. The researchers made a strong statement regarding this issue. In essence, it does not make sense to find a hypothesis statistically significant and not move forward in marshalling the resources needed to address unmet needs.

Research Methods and Statistical Analysis. The researchers did an excellent job in designing and conducting this ex post facto research. The questionnaire was developed and reviewed by a panel of experts to establish content validity. Reliability of the instrument was established during the pilot test as well as the final instrument used in the study. Cronbach's alpha coefficients were .90 or higher. With a 100 percent return rate and the high Cronbach's alpha coefficient levels, I commend the researchers for presenting valid and reliable information on a very important topic. This is certainly a well designed study. The researchers also used the appropriate statistical analysis to match the design of the study and the findings were clearly reported in the paper.

Summary. In summary, this study could be used as one model for planning and conduction ex post facto research. The information was presented very well including the implications and recommendations section of the paper. I commend the researchers for a job well done.

# A CRITIQUE

# Instructional Program, SOEP and FFA Quality and Factors Related to Quality

by

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Significant Impact on the Agricultural Education Profession. This research "Instructional Program, SOEP and FFA Quality and Factors Related to Quality" is a timely study and is significant to the profession. In light of the focus on education including agricultural education, the issue of quality has become the focal point. Global economic issues are causing various sectors of the economy including the agricultural industry to recommit themselves to quality. Certainly, what we believe to be the heart of local agricultural education programs must demonstrate quality if we are to remain a viable entity in the educational system.

Contributions to Future Research. In reviewing the introduction section of the paper, it is apparent that the researcher did a thorough job in reviewing the literature that is related to the study. More importantly, the researcher used the work of the profession as a yardstick to examine the instructional program, SOEP and FFA in terms of quality. He used the "Standards for Quality Vocational Programs in Agriculture/Agribusiness Education" as a starting point in assessing program quality as perceived by vocational agriculture teachers. This national study provides an excellent foundation for further research in agricultural education.

Research Methods and Statistical Analysis. I commend the researcher for using appropriate methods in planning and designing this study. The problem was clearly stated based on a review of the literature and research. As you have witnessed, the research questions were clearly outlined. The content of his instrument was appropriately validated by university faculty and state staff. The instrument was field tested to establish reliability by using vocational agriculture teachers not selected to participate in the study. Cronbach's alpha levels of .77 for the instructional program, .82 for SOEP, and .77 for FFA indicates that the instrument was highly reliable.

The random sample size of 567 teachers from a population of 11,750 teachers was appropriate because this sample size assures a 95% or higher confidence level with respect to the data collected. The researcher indicated that in comparing the early and late respondents, he found no significant difference. Thus concluding that late respondents are similar to non-respondents. Therefore, he could make generalizations about the entire sample and population. I would support this conclusion.

The scale used in this study and means for quantifying the data were appropriate. Additionally, correlational coefficients were calculated for this correlational design study. This was appropriate for the research design of the study.

Summary. In summary, this study could be used as one model for planning and conducting correlational research. The information was clearly presented in the paper. I was particularly impressed with the way the researcher discussed the conclusions and recommendations. This is one study the profession should carefully review and discuss. Based on the findings, we should be able to communicate with confidence the factors which are important relative to offering local quality programs. I commend the researcher for providing the profession with this most needed study results.

# A CRITIQUE

## Assessing the Education Training Needs of Volunteer 4-H Leaders in Indiana

by

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Significant Impact on the Agricultural and Extension Education Profession. Considering that 4-H programs use a large number of volunteers to operate local programs, this study is significant to the profession particularly the 4-H professional staff in Indiana. The researchers did a good job in explaining the benefits of this research after reviewing related research and literature pertinent to the topic.

Contributions to Further Research. The researchers acknowledged that this study was intended to provide some preliminary research relating to the topic of volunteer 4-H leaders. I would not recommend that this study be replicated as designed. However, I would think that the instrument and findings could be used to design a more in-depth study. I would think that this preliminary information would be especially useful for strengthening the volunteer 4-H leaders program in Indiana.

Research Methods and Statistical Analysis. The problem and objectives were clearly stated. The instrument was developed, field tested and a Cronbach alpha reliability of .94 was recorded. The researchers indicated that "The population for this study was volunteer 4-H leaders from throughout the state of Indiana." They also indicated that "The sample population included all volunteer 4-H leaders that attended the 1986 Indiana Leaders Conference." Even though the leaders who attended the conference were from all parts of Indiana, I believe the population in the study as designed was the volunteers who actually attended the conference. Therefore, one has to be careful in interpreting the data without checking the views of the volunteers who did not attend the conference. From a research point of view, I believe your study provides some information about the volunteers who attended the conference and not all volunteer 4-H leaders in Indiana.

The questionnaires were returned by the 4-H volunteer leaders when they registered at the conference and produced about a 65% response rate. Perhaps some additional and creative method could have been utilized by the researchers in order to achieve a higher return rate. The researchers used appropriate statistical analysis to analyze the data.

Summary. In reviewing the conclusions and recommendations section of the paper, it was apparent that the researchers were aware of points I mentioned earlier. I commend them for recognizing the points mentioned because it alerts other researchers to the nature and specificity of a preliminary study designed primarily for strengthening the volunteer 4-H leaders program in Indiana.

# THE RELATIONSHIP BETWEEN PERFORMANCE ON THE VOCATIONAL AGRICULTURE ACHIEVEMENT TEST AND SELECTED CHARACTERISTICS OF FARM MANAGEMENT GRADUATES IN OHIO

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## INTRODUCTION

Currently 22 vocational agriculture departments in Ohio administer the Vocational Achievement Tests developed by the Instructional Materials Laboratory of The Ohio State University to evaluate the progress of students toward entry-level competency in Farm Management. In the time period 1981 to 1985, there were 1182 tests administered to junior and senior Farm Management students. In these programs, it is assumed that the basic components of quality vocational agriculture instruction are used to prepare all students for entry-level employment in the farm management field. The more completely prepared a student is, the higher the student's achievement test scores should be (Altschuld & Hines, 1981). Is the Vocational Agriculture Achievement Test in any way related to the future of the student taking the test? Does a student scoring well on the Vocational Agriculture Achievement Test have a higher job satisfaction rating, a better income, a lower number of job changes, a higher tendency to continue education beyond the secondary level, a higher rate of retention in agricultural careers, and a higher employment rate?

Achievement testing involves the use of a test to determine the level of knowledge about a particular area of knowledge. The term "test" is defined as a systematic procedure for measuring a sample of behavior (Brown, 1983). This implies that the test is constructed, administered, and scored according to prescribed rules.

The Farm Management Vocational Achievement Test was developed and reviewed by a committee consisting of an individual from the state supervisory staff, selected teachers in the agricultural area, a representative of the agricultural occupation and a representative of The Ohio State University Instructional Materials Laboratory. The test is designed to measure critical skills and knowledge required for effective job performance as determined from a task analysis. The test consists of 304 multiple choice items (four alternatives per item) and is organized into 11 subsets with each subset assessing student knowledge and understanding of a specific aspect of farm management. The maximum score possible on the Farm Management Achievement Test is 304.

Hines (Altschuld & Hines, 1981) conducted a study that compared test scores with levels of vocational training and experience. The hypothesis was that test scores would increase as experience increased within a chosen field. The results of the study showed the tests to be valid. Several studies have addressed job satisfaction (Henderson, 1956). It is commonly agreed that income, length of tenure, and production levels do not necessarily indicate job satisfaction (Hoppock, 1936). This makes it necessary to collect more affective data to determine job satisfaction.

A major theory on job satisfaction was put forward by Herzberg in "The Motivation to Work" (1951). Herzberg's basic premise was that job satisfaction was based on a two-factor theory. Herzberg hypothesized that satisfaction and dissatisfaction were not two ends of a continuum but were separate and distinct. He further suggested that there were specific factors that could be attributed primarily to satisfaction (motivators) and factors that could be attributec primarily to dissatisfaction (hygienic factors).

Thorndike (1934) found very low correlations between job satisfaction of employees and academic achievement test scores in a 10-year follow-up. Thorndike questioned the results because the Great Depression may have caused individuals to take jobs that were not directly related to the individual's desired positions in life.

The factors that are motivators should appear to be positively correlated with satisfaction, and the hygiene factors should be negatively correlated with job satisfaction (Gruneberg, 1976). A major factor that could affect this relationship is put forth by Lofquist and Dawis (1969). The assumption was that jobs satisfaction develops over time as the worker attempts to adjust the environment or expectations to fit into a satisfying situation.

With an increased emphasis on competency based testing to determine curriculum changes, program improvement, and student achievement, the achievement tests that may ultimately be used to determine programmatic changes should be reviewed in detail. This review should include an examination of the relationship between test scores and some basic characteristics of the former junior and senior farm management students in the work force. There has been no effort to-date that tried to determine the relationship between the achievement test scores and the characteristics of the graduate farm management students tested.

## PURPOSE AND OBJECTIVES

The purpose of this study was to determine the relationship between vocational agriculture achievement test scores achieved by farm management students in the years 1981-1983 and the job satisfaction, annual income, level of employment (full-part-none), type of employment (ag/non-ag), number of job changes, and level of education of the same students. The following objectives were used to guide this study:

1. Determine the level of achievement on Vocational Agriculture Achievement Test by senior farm management students in 1981-1983.

2. Determine the perceived current job satisfaction, annual income, level of employment (full-part-none), type of employment (ag/nonag),

number of job changes, and level of education of the seniors who took the Vocational Agriculture Achievement Test from 1981 to 1983.

3. Ascertain the relationship between the Vocational Agriculture Achievement Test scores of students and their job satisfaction, annual income, level of employment, type of employment, number of job changes, and level of education.

## PROCEDURES

The population included all individuals who graduated from farm management classes within the framework of vocational education in agriculture. This population included individuals who graduated from programs in secondary high schools and vocational career centers. The population was limited to the 1981-1983 period of time by two factors. Prior to 1981, there were no Vocational Agriculture Achievement Tests administered. Graduates from programs after 1983 would not have had adequate time to complete higher education and/or hold jobs for any length of time.

The subjects identified for this study were those seniors who graduated from farm management programs in the years 1981-1983, were administered the Vocational Achievement Test in Farm Management, and were located by follow-up information from the schools that the individuals attended. The subjects were considered to be a sample of the larger population of graduates of farm management programs.

The Hoppock's Job Satisfaction Blank, No. 5 (Hoppock, 1935) was used as the instrument to determine the relative job satisfaction level of all subjects. This is a reliable instrument to determine an individual's job satisfaction level. The Job Satisfaction Blank has a Split-half reliability adjusted by Spearman-Brown formula of .93. Along with the Hoppock's blank, a set of questions was included to determine annual income, level of employment, type of employment, age, number of jobs since graduation, and level of education. The Farm Management Vocational Achievement test scores were collected directly from Instructional Materials Laboratory printouts.

The following steps were utilized to complete the collection of the necessary data. A request was made to the school that administered the vocational achievement test for current addresses of the subjects to be studied. All schools who did not respond were contacted by phone. The instrument was sent to all students whose addresses were received. A follow-up mailing was made to all non-respondents. A random sample of the non-respondents was telephoned and asked the questions included in the instrument.

## RESULTS

### Description of the Respondents

There were 96 respondents out of 200 valid addresses sampled (48%). The respondents returned questionnaires by mail in two waves with 63 first wave respondents (65.6%) and 23 second wave respondents (24%). In addition to questionnaires returned by mail, 10 respondents were success-fully canvassed by phone (10.4%). There was no significant difference between the first wave respondents and the third wave respondents. All two-tailed probability calculations were greater than .05.

The respondents ranged in age from 21 to 25 years. Their mean age was 22.5 years. Seventy four of the 96 had not gone on to further education. Two had received their bachelor's degree. Fifty-nine of the respondents were in fields of agricultural pursuit, 25 in non-agricultural occupations, and 12 unidentified. Thirty-nine of the respondents were either full- or part-time farmers (46% of all respondents identifying a type of employment).

## Objective 1--Level of achievement on the Farm Management Vocational Achievement Test

The scores achieved by the respondents on the Farm Management Vocational Achievement Test (Table 1) ranged from a minimum of 84 to a maximum of 274 (test range possible 0 to 304). The mean score for the respondents was 156.7. The median score was 151.00

**Table 1**

**Farm Management Test Score**

| Farm Management Test Score | Frequency | Percent |
|---|---|---|
| 84 - 100 | 7 | 7.3 |
| 101 - 120 | 16 | 17.0 |
| 121 - 140 | 16 | 17.0 |
| 141 - 160 | 16 | 17.0 |
| 161 - 180 | 15 | 16.0 |
| 181 - 200 | 7 | 7.3 |
| 201 - 220 | 8 | 8.5 |
| 221 - 240 | 3 | 3.3 |
| 241 - 260 | 3 | 3.3 |
| 261 - 274 | 3 | 3.3 |
| Total | 94 | 100.0 |

Note. Mean = 156.7.

## Objective 2 - Characteristics of Selected Variables

**Job satisfaction.** The job satisfaction score determined by Hoppock's Job Satisfaction Blank consisted of four separate scores which were totaled to arrive at a composite job satisfaction score. Table 2 gives composite results of the total job satisfaction score of the respondents. The mean job satisfaction score was 20.98, which is near the 53 percentile rank as identified by the standardized percentile ranking of the job satisfaction instrument. The lowest and highest respondents were at the lowest and highest scores possible, 4 and 28 respectively.

Table 2

Total Job Satisfaction Score

| Job Satisfaction Score | Percentile Rank | Frequency | Percent |
|---|---|---|---|
| 4 - 10 | 1 - 8 | 5 | 5.5 |
| 11 - 15 | 11 - 21 | 3 | 3.3 |
| 16 - 20 | 23 - 40 | 26 | 28.2 |
| 21 - 25 | 53 - 85 | 43 | 46.7 |
| 26 - 28 | 93 - 99 | 15 | 16.3 |
| Totals | | 92 | 100.0 |

Note. Mean = 20.98.

**Type of employment.** Nearly 70% of the respondents in this study worked at agriculturally-related jobs. The job classification was determined by the job title and explanation given by the respondents. Over 30% of the respondents were employed in nonagricultural jobs (Table 3).

Table 3

Type of Employment

| Employment Status | Frequency | Percent |
|---|---|---|
| Agricultural | 58 | 69.9 |
| Nonagricultural | 25 | 30.1 |
| Totals | 83 | 100.0 |

**Annual income.** The gross annual income of the respondents was between $10,000 and $14,999. Table 4 shows the distribution of gross income with percentage of respondents in each category.

Table 4

**Annual Income**

| Gross Income | Frequency | Percent |
|---|---|---|
| Less than $10,000 | 17 | 19.5 |
| $10,000 to $14,999 | 22 | 25.4 |
| $15,000 to $19,999 | 26 | 29.9 |
| $20,000 to $24,999 | 11 | 12.6 |
| More than $24,999 | 11 | 12.6 |
| Totals | 87 | 100.0 |

**Level of employment.** Table 5 shows the distribution of the respondents by present occupational/educational status. Over 86% of the respondents were fully employed and not attending higher educational institutions. Only 4.2% of the respondents were unemployed, not attending higher educational institutions, and looking for a job.

Table 5

**Level of Employment**

| Present Status | Frequency | Percent |
|---|---|---|
| Full-time job, not in college | 82 | 86.3 |
| Full-time college, part-time job | 3 | 3.2 |
| Part-time job, not in college | 3 | 3.2 |
| Part-time college, no job | 1 | 1.0 |
| In armed forces | 2 | 2.1 |
| Not in college/no job but looking | 4 | 4.2 |
| Totals | 95 | 100.0 |

**Level of Education.** The respondents were primarily high school graduates with no further education. Only 23.1% of the respondents had or were working toward any higher education. Table 6 shows the distribution of respondents according to their present level of educational achievement.

Table 6

Level of Education

| Present Status | Frequency | Percent |
|---|---|---|
| High school graduate | 73 | 76.9 |
| Working toward degree | 12 | 12.6 |
| Associate's degree | 8 | 8.4 |
| Bachelor's degree | 2 | 2.1 |
| Totals | 95 | 100.0 |

**Number of Job Changes.** The number of job changes that the respondents had made since graduation is shown in Table 7. The mean number of job changes was 2.5. The largest number of job changes was 9 and the lowest number of job changes was 0.

Table 7

Number of Job Changes

| Number of Changes | Frequency | Percent |
|---|---|---|
| 0 | 5 | 5.3 |
| 1 | 35 | 36.7 |
| 2 | 22 | 23.2 |
| 3 | 15 | 15.8 |
| 4 | 7 | 7.4 |
| 5 | 3 | 3.2 |
| 6 | 1 | 1.0 |
| 9 | 7 | 7.4 |
| Totals | 95 | 100.0 |

Note. Mean = 2.5.

## Objective 3 - Relationship Between Farm Management Vocational Achievement Test Scores and Selected Variables

Table 8 shows the Pearson r for the selected variables and their relationship to the Farm Management Vocational Achievement Test scores. There was no significant association between job satisfaction, annual income, level of employment, and number of job changes and the Farm Management Vocational Achievement Test scores (alpha = .05).

Table 8

Correlation Between Farm Management Test Score and Selected Variables

| Variable | $r$ | $r_{pb}$ | $r_{rb}$ |
|---|---|---|---|
| Job Satisfaction | .02 | | |
| Annual Income | | | .002 |
| Level of Employment | | | -.03 |
| Type of Employment | | .20* | |
| Number of Job Changes | -.08 | | |
| Level of Education | | | .25* |

*$p<.05$.

There was a low association between the Farm Management Achievement Test score and the type of employment ($r = .20$, $p = .038$). The higher the Farm Management Achievement Test score, the more likely the respondent would be employed in an agriculturally related occupation.

There was a low association between the Farm Management Achievement Test score and level of education ($r = .25$, $p = .007$). The higher the Farm Management Achievement Test score, the more likely the respondent had completed higher education.

## CONCLUSIONS AND RECOMMENDATIONS

The study indicated that the Farm Management Vocational Achievement Test may not be a valid indicator of future job satisfaction, annual income, or employability. The study indicated that a student who does well on the Farm Management Vocational Achievement Test will be more likely to become employed in the agricultural sector and will be more likely to continue on to some type of higher education.

Job satisfaction, employment and annual income are all important factors to any individual seeking work-related success. Since vocational agriculture programs should constantly strive to develop programming that improves a student's potential for job satisfaction, employment, and income, it would seem that any standard of measure used to evaluate a program should be, at least minimally, associated with these attributes. The Farm Management Vocational Achievement Test does not seem to have any association with these important attributes. Any attempt to improve programming probably should not be based solely on the Farm Management Vocational Achievement Test scores achieved by students.

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